

**IBM Cognos Report Studio:  
Author Professional Reports  
Advanced (v10.1)**

Instructor Guide

**Course Code: B5159**

*IBM Cognos Report Studio: Author  
Professional Reports Advanced (v10.1)*

*B5159*

*ERC: 2.0*

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## Course Overview

### Course Overview

IBM Cognos Report Studio: Author Professional Reports Advanced (v10.1) is a two-day, instructor-led course in which students build on their experience with Report Studio. Building on topics learned in the Fundamentals course, the advanced course is designed for professional report authors to learn advanced report building techniques using relational data models, and ways of enhancing, customizing, and managing professional reports. Attendees will participate in hands-on demos and workshops that illustrate key concepts while learning how to use the product.

### Intended Audience

Professional Report Authors

### Topics Covered

Topics covered in this course include:

- Examine and edit XML in report specifications
- Burst and distribute reports through email and IBM Cognos Connection
- Create relationships between queries (set operations, joins, query references)
- Design effective prompts to determine report contents and/or format at runtime
- Navigate reports using bookmarks and table of contents
- Add HTML items to control the behavior of elements in your reports
- Create agents to manage an event lifecycle in Event Studio

## Course Prerequisites

Participants should have:

- IBM Cognos Report Studio: Author Professional Reports Fundamentals (v10.1)
- Knowledge of your business requirements
- Basic knowledge of SQL
- Basic knowledge of XML (recommended)

## Important Course Changes

### **New features for IBM® Cognos® Report Studio: Author Professional Reports Advanced (v10.1)**

#### **General Changes**

- Changed to DB2 Express as database server for a more IBM focused environment.
- Reordered modules to move Module 1 (Examine the Report Specification) to Module 8.
- Included ILO (Instructor Lead Online) interactions.
- Updated references to new IBM standards (i.e. IBM Cognos)
- Updated package structure to a more streamlined naming convention.
- Removed Express Reporting.
- Data source Samples now have all data items conformed.
- Added the Container Selector, to select the entire data container rather than use Select Ancestor. (Charts do not have this function)
- All demos/workshops have been updated to use Container Selector rather than Select Ancestor.

#### **Module 7: Create Additional Advanced Reports**

- Added additional content about creating a report using external data
- Added an additional demo (Create a Report Using and external Data File)



## Course Outline

The following table outlines the high-level topics for each module, and the number of slides, demos and workshops included, as well as the estimated teaching time.

<b>Module 1 - Create Query Models</b>				
Topics	Slides	Demos	Workshops	Est. Time
<ul style="list-style-type: none"> <li>• build query models and connect them to the report layout</li> <li>• edit an SQL statement to author custom queries</li> <li>• add filters and prompts to a report using the query model</li> </ul>	11	3	1	45 mins
<b>Module 2 – Create Reports Based on Query Relationships</b>				
Topics	Slides	Demos	Workshops	Est. Time
<ul style="list-style-type: none"> <li>• Create reports by merging query results</li> <li>• Create reports by joining queries</li> <li>• Combine data containers based on relationships from different queries</li> <li>• Create query containers containing a single data value</li> </ul>	12	4	1	1 hr. 15 mins.

## Module 3 – Distribute Reports Through Bursting

Topics	Slides	Demos	Workshops	Est. Time
<ul style="list-style-type: none"> <li>• Distribute reports using bursting</li> <li>• Create burst keys</li> <li>• Identify report recipients and data items using burst tables</li> <li>• Distribute reports using email and Cognos Connection</li> </ul>	18	3	1	1 hr.

## Module 4 – Create Advanced Dynamic Reports

Topics	Slides	Demos	Workshops	Est. Time
<ul style="list-style-type: none"> <li>• Filter reports on session parameter values</li> <li>• Navigate a briefing book using a table of contents</li> <li>• Create dynamic headers and titles that reflect report data</li> <li>• Create a Customer Invoice report</li> </ul>	15	4	2	1 hr. 30 mins.

## Module 5 – Design Effective Prompts

Topics	Slides	Demos	Workshops	Est. Time
<ul style="list-style-type: none"> <li>• control report displays using prompts</li> <li>• specify conditional formatting values using prompts</li> <li>• create a report that formats based on prompt selection</li> <li>• create a sorted report based on prompt selection</li> <li>• create a filtered report based on prompt selection</li> </ul>	13	4	1	1 hr, 30 mins.

## Module 6 – Enhance User Interaction with HTML

Topics	Slides	Demos	Workshops	Est. Time
<ul style="list-style-type: none"> <li>• Create tooltips that clarify report data</li> <li>• Create a Prompt window to open and close dynamically</li> <li>• Send E-mails using links in a report</li> </ul>	10	2	1	45 mins.

## Module 7 – Create Additional Advanced Reports

Topics	Slides	Demos	Workshops	Est. Time
<ul style="list-style-type: none"> <li>• Create a report that displays summarized data before detailed data</li> <li>• Highlight alternate rows in a list report</li> <li>• Highlight exceptional data in crosstabs using a measure not displayed in the report</li> <li>• Create a report using an external data file</li> <li>• Save Reports to the Server File System</li> </ul>	14	4	1	1 hr. 30 mins

## Module 8 – Examine the Report Specification

Topics	Slides	Demos	Workshops	Est. Time
<ul style="list-style-type: none"> <li>• Examine the report specification structure</li> <li>• Save and edit reports locally</li> <li>• Discuss considerations for modifying a report specification</li> <li>• Discuss adding custom toolbox objects and custom template options</li> </ul>	16	2	1	1 hr. 30 mins.

<b>Module 9 – End to End Workshop</b>				
<b>Topics</b>	<b>Slides</b>	<b>Demos</b>	<b>Workshops</b>	<b>Est. Time</b>
<ul style="list-style-type: none"> <li>• Create reports to meet various business requirements</li> <li>• Practice the concepts learned throughout the course</li> </ul>	6	0	4	2 hrs. 30 mins.
<b>Appendix A – Introduction to Event Studio</b>				
<b>Topics</b>	<b>Slides</b>	<b>Demos</b>	<b>Workshops</b>	<b>Est. Time</b>
<ul style="list-style-type: none"> <li>• Examine the role of Event Studio in Corporate Performance Management</li> <li>• List the benefits of Event Studio</li> <li>• Add tasks to an agent</li> <li>• Run an agent</li> </ul>	8	3	0	45 mins.

# Instructional Materials

## Student Guide

The Student Guide contains material that helps to explain features of the product, along with the presentation slides that are presented by the instructor. Student demos and workshops are incorporated in the course to enrich the learning experience through hands-on practice.

## Demos

Demos appear after covering one or more topics or features of the application. While not every product function is demonstrated, participants work with the more important and complex features through a series of tasks. Demo tasks contain a number of steps related to a specific action or feature of the product.

## Workshops

In most of the modules, a supplementary workshop is included. If participants followed the concepts in class without difficulties, they can probably complete the workshop with no additional information. The second section for each workshop contains a task table that identifies each task, where to work in the application, and any applicable hints to help the participants. The third section of the workshop contains screen captures of the expected results. The fourth section contains a step-by-step solution to the workshop. Participants may want to follow these instructions if they are not able to complete the workshop or if they require a little more practice with the application.

## **Instructor Guide**

The Instructor Guide contains the same content presented in the Student Guide, along with additional notes to supplement and add value to the lecture. The information can be generic, non-technical information, such as multiple ways to perform the same command or a more in-depth discussion of a topic. It may also be used to address more technical questions from participants or as supplementary technical discussion, at the discretion of the instructor. It helps to provide the appropriate level of information to a specific audience.

## **Instructor Slides**

B5159\_SHOW.zip contains the following presentations for each module of the course as presented in the Student Guide:

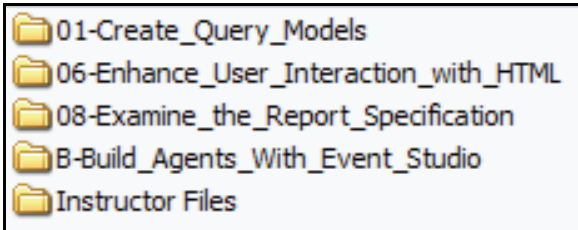
### **Instructor Slides**

These files contain the Microsoft PowerPoint slide presentation for each module of the course as presented in the Student Guide:

- **StartB5159.pps**
- **Introduction.pps**
- **01-Create\_Query\_Models.pps**
- **02-Create\_Reports\_Based\_on\_Query\_Relationships.pps**
- **03-Distribute\_Reports\_Through\_Bursting.pps**
- **04-Create\_Advanced\_Dynamic\_Reports.pps**
- **05-Design\_Effective\_Prompts.pps**
- **06-Enhance\_User\_Interaction\_with\_HTML.pps**
- **07-Create\_Additional\_Advanced\_Reports.pps**
- **08-Examine\_the\_Report\_Specification.pps**
- **09-End\_to\_End\_Workshop\_Optional.pps**
- **A-Introduction\_to\_Event\_Studio.pps**

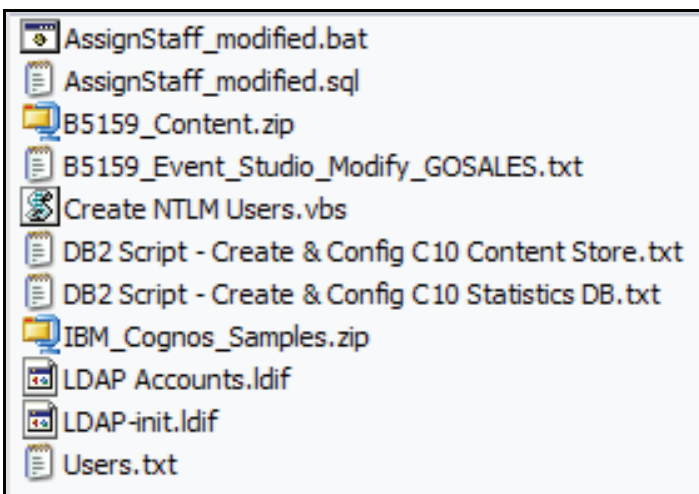
## Student Data

The B5158\_B5159\_LSG.zip includes the Student Data.exe, and Setup Instructions PDF. By installing the EXE on your computer and following the prompts as the auto install runs, these files will be installed in C:\Edcognos\B5159.



## Instructor Files Expanded

This folder contains the following files needed to set up the student and instructor machines:



## Solution Files

Solution files will be installed IBM Cognos Public Folders\B5159 Solutions. See Setup instructions for deployment information.



## General Setup and Instructor Preparation

### Pre-Class Agenda

To ensure that the class runs smoothly, you should know the answers to the following questions. If you need help in obtaining answers, contact the customer or customer's sales representative (if the course is scheduled for a client site), or the local office responsible for course logistics.

- Who is the contact person for class setup?
- What is the classroom setup? Is there a white board? Is there a flip chart? Is there a computer for the instructor, a PC viewer, overhead projector, and screen?
- Will the physical environment be set up prior to your arrival (product loaded and PowerPoint files on the computer)?
- What time does the class start?
- What hours are available for accessing the teaching site, copying the files to the hard disk, tuning the color on the PC viewer, and so on?
- What IBM office is responsible for sending the Student Guides?
- If the course has been previously taught on the computers you are using, have the Preferences been reset to their defaults, and have student files been deleted?

## **Prepare to Teach**

After you have configured the instructor and student computers, consider the following:

- Run through at least one module in a classroom with a PC viewer.
- Run through the full course at least once on a computer.
- Make sure you complete each of the demos before teaching the course so that you become familiar with each step required.
- Have a set of product reference manuals in the classroom.
- Make sure that there is a Student Guide for each participant.

## Document Conventions

Conventions used in this guide follow Microsoft Windows application standards, where applicable. As well, the following conventions are observed:

### **Bold**

Bold style is used in demo and workshop step-by-step solutions to indicate either:

- actionable items

(Point to **Sort**, and then click **Ascending**.)

- text to type or keys to press

(Type **Sales Report**, and then press **Enter**.)

- UI elements that are the focus of attention

(In the **Format** pane, click **Data**)

### *Italic*

Used to reference book titles.

### CAPITALIZATION

All file names, table names, column names, and folder names appear in this guide exactly as they appear in the application.

To keep capitalization consistent with this guide, type text exactly as shown.

# Workshops

## Workshop Format

Workshops are designed to allow you to work according to your own pace. The workshops are structured as follows:

### The Business Question Section

The first page of each workshop presents a business-type question followed by a series of steps. These steps provide additional information to help guide you through the workshop. Within each step, there may be numbered questions relating to the step. Solve the tasks by using the skills you learned in this module and in previous ones. If you need more assistance, you can refer to the Task Table section that provides more detailed instruction.

### The Task Table Section

The second page of the workshop is a Task Table that presents the question as a series of numbered tasks to be accomplished. The first column in the table states the task to be accomplished. The second column, "Where to Work", indicates the area of the product to work in. Finally, the third column provides some hints that may help you complete the workshop. If you need more assistance to complete the workshop, please refer to the Step-by-Step Instructions at the end of the workshop.

### The Workshop Results Section

This section will contain a screen capture(s) of interim or final results and/or answers to the questions asked in the Business Question section.

### The Step-by-Step Section

The Step-by-Step instructions for completing all of the tasks are located at the end of the workshop following the Workshop Results section. Each task in the Task Table is expanded into numbered steps, scripted like the demos.

## PowerPoint Tips

Here are valuable keyboard commands you can use to improve your presentation.

Command	Key(s)
Advance to next slide	Left-click, Page Down, Space, N, Right or Down Arrow, right-click/Next, Enter
Return to previous slide	Backspace, Page Up, P, Left or Up Arrow, right-click/Previous
Change pointer to a pen	Right-click/Pen or Ctrl+P
Erase drawings on screen	E
Make the screen white	W or ',' (toggle to restore)
Make the screen black	B or '.' (toggle to restore)
Help	?
End the slide show	Esc, Ctrl+Break, '-'
Move between PowerPoint and the product	Alt+Tab or click the application name on the status bar

You can also jump to a specific slide by typing its slide number and pressing the Enter key. However the slide number is not the same as the printed page number because a page may be built from several slides to produce an animation sequence.

### Important Tips:

- A page containing an animation slide (multiple clicks to complete the slide) will also include an Instructor Guide note indicating the number of clicks needed to complete the slide.

## VMware Keyboard Shortcuts

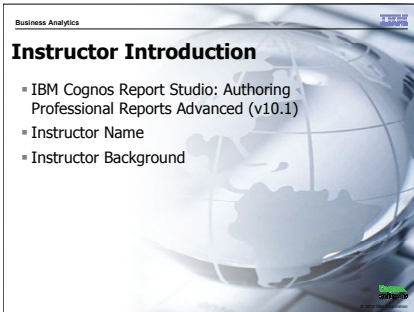
Below is a list of shortcuts that can be used when in a VM image.

Shortcut	Action
Ctrl-B	Power on.
Ctrl-E	Power off.
Ctrl-R	Reset the power.
Ctrl-Z	Suspend.
Ctrl-N	Create a new virtual machine.
Ctrl-O	Open a virtual machine.
Ctrl-F4	Close the summary/console view for the selected virtual machine. A confirmation dialog appears only if the virtual machine is powered on.
Ctrl-D	Edit the virtual machine's configuration.
Ctrl-G	Grab input from keyboard and mouse.
Ctrl-P	Edit preferences.
Ctrl-Alt-Enter	Go to full screen mode.
Ctrl-Alt	Return to normal (windowed) mode.
Ctrl-Alt-Tab	Switch among open virtual machines while mouse and keyboard input are grabbed.
Ctrl-Tab	Switch among open virtual machines while mouse and keyboard input are not grabbed. VMware Workstation must be the active application.

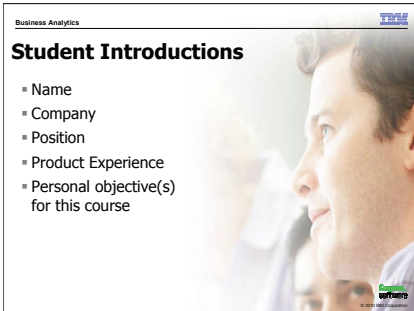
Shortcut	Action
Ctrl-Shift-Tab	Switch among open virtual machines while mouse and keyboard input are not grabbed. VMware Workstation must be the active application.
Ctrl-Alt-Fx	<p>Linux hosts: Switch among open virtual machines while using full screen mode. Fx is a function key corresponding to the virtual machine you want to use. The key combination to use for a virtual machine is shown in the VMware Workstation title bar when that virtual machine is active and in normal (windowed) mode.</p> <p>Windows hosts: For an additional similar functionality, see Using Full Screen Switch Mode.</p>

## Get the Class Started

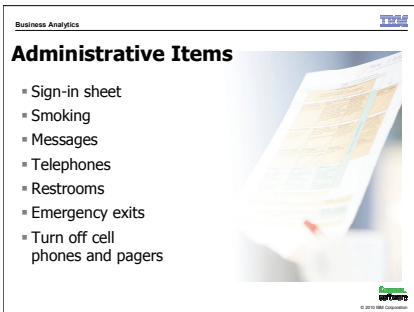
Welcome participants to the course. Use the slide show, STARTB5159.PPT, to introduce yourself, the participants, and the agenda for the training (optional).



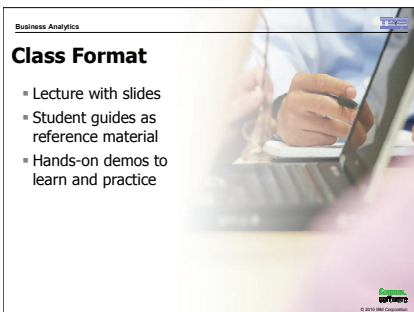
Use this slide to welcome the participants to the course, to introduce yourself, and to mention your background (for example, how long you have been teaching the course, your teaching experience overall, how long you have been working with the product, and so on). Make sure you have customized the slide ahead of time.



Have the participants take turns introducing themselves with respect to the items listed on this slide. The intent of the slide is to act as an icebreaker and to encourage participation.



Use this slide to go through the list of administrative items that participants often ask about.



Use this slide to explain the class format and emphasize that participants are encouraged to actively perform the hands-on demos while following along with the instructor. Mention that the Student Guide contains copies of the slides and further supporting notes for the participants to use as reference material in the future.



## Post-Class Agenda

- Have participants complete the Course Evaluation forms.
- Hand out certificates.
- Leave the classroom clean.
- If you brought any hardware or course media, take them with you when you leave. Erase any files copied to the hard disks of the computers in the classroom. Change the Preferences back to their initial settings.
- Complete the Instructor Feedback form, and return it to the Education Coordinator. Ensure that the Coordinator receives the Course Evaluation forms.
- If you are at a customer site, thank the course administrator by letter.
- List any outstanding questions, and ensure that participants receive answers in writing.
- Report any sales leads to your sales representative.
- Make notes for yourself about what went well during the course and what needs improvement. When you are preparing for your next teach, you can refer to these.

## **Submit Feedback and Locate Additional Product Information**

### **Submit Feedback**

Your feedback is important and valuable. We are interested in your comments or questions. If you have feedback for a course, you may directly submit it to our online database using the following link: <http://sottgesops.ottawa.ibm.com/feedback/default.htm>. The link to this feedback database can also be found in the Instructor Support section of the IBM Cognos Education wiki.

You may also send general comments or concerns to Global Education Services at [Cognos.ges@ca.ibm.com](mailto:Cognos.ges@ca.ibm.com).

In the Instructor Support area on the IBM Cognos Education wiki, your suggested course corrections and course-related supplementary information (e.g., additional demos you use, diagrams you created) will be posted within the Instructor Zone under Course Updates & Corrections, and teaching tips and techniques will be posted within the Instructor Zone under Share Your Knowledge. This gives other worldwide instructors immediate use of the information. Technical course developers will also use this information when the course is updated.

Access the Instructor Support Community on the IBM Cognos Education wiki at <https://w3.tap.ibm.com/w3ki07/display/IBMCogEd/Instructor+Support>. You will also find additional course information (e.g., course release status or course development templates) in the Instructor Support Community, which you may find useful when preparing for courses.

Suggestions for significant course enhancements will be reviewed for possible implementation in future course updates.

## IBM Product Help

Help type	When to use	Location
Task-oriented	You are working in the product and you need specific task-oriented help.	<i>IBM Product</i> - Help link
Books for Printing (.pdf)	<p>You want to use search engines to find information. You can then print out selected pages, a section, or the whole book.</p> <p>Use Step-by-Step online books (.pdf) if you want to know how to complete a task but prefer to read about it in a book.</p> <p>The Step-by-Step online books contain the same information as the online help, but the method of presentation is different.</p>	Start/Programs/ <i>IBM Product</i> /Documentation
IBM on the Web	<p>You want to access any of the following:</p> <ul style="list-style-type: none"> <li>• Services and Training Web site</li> <li>• Online support</li> <li>• IBM Web site</li> </ul>	<a href="http://www.ibm.com/Cognos/services">http://www.ibm.com/Cognos/services</a> <a href="http://www.ibm.com/Cognos/support">http://www.ibm.com/Cognos/support</a> <a href="http://www.ibm.com">http://www.ibm.com</a>

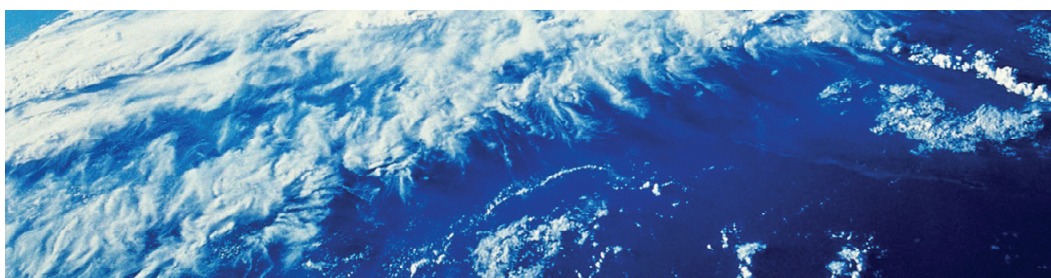




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# Setup Instructions

IBM Cognos Report Studio: Author Professional Reports  
Fundamentals (v10.1)



**Business Analytics**

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# Setup Instructions for IBM Cognos Report Studio: Author Professional Reports Fundamentals (v10.1)

## Instructor and Student Computer Checklist

Use the following checklist when configuring both the instructor and student computers. The total time to set up the instructor and student computers is listed in the table.

Setup	Page	Est. Time	Complete
Microsoft Windows XP SP3			
Microsoft Internet Explorer 7.0 For required browser settings, see the section title "Configure Web Browsers" in the IBM Cognos Business Intelligence Version 10.1.0 Installation and Configuration Guide.			
Additional Browser Configuration	SI-6		
Install Adobe Flash Player 10			
Install Adobe Reader 7			
MS Office 2003 <ul style="list-style-type: none"> <li>• MS Office PowerPoint 2003</li> <li>• MS Office Excel 2003</li> <li>• MS Office Word 2003</li> </ul>			
Install DB2 Express Version 9.7	SI-7	5 mins	
Ensure You Have Internet Information Services (IIS) Installed	SI-8	2 mins	
Install and Configure Apache Directory Server	SI-9		

Setup	Page	Est. Time	Complete
Create Users in the NTLM Authentication Provider	SI-15	15 mins	
Configure the Web Server	SI-16		
Install and Configure Lotus Domino Server 8.5.1 and Lotus iNotes	SI-17	10 mins	
Install: Eclipse JEE Galileo (JAVA IDE) (eclipse-jee-galileo-win32.zip) SWT 3.4 win 32 (standard widget toolkit) Sharp Develop 3.0.0. (C# IDE)			
Perform a default installation of IBM Cognos BI: Note: Do not set up the content store database and do not configure IBM Cognos BI. <ul style="list-style-type: none"> <li>• IBM Cognos BI Modeler (bimodel)</li> <li>• IBM Cognos BI Samples (bisamples)</li> <li>• IBM Cognos BI Server (bisrvr)</li> <li>• IBM Cognos Statistics 10.1 (stats)</li> </ul>		1 hr	
Create the IBM Cognos BI Content Store and Samples database	SI-26	2 mins	
Set up Web Aliases	SI-32	2 mins	
Configure IBM Cognos BI	SI-33	10 mins.	
Deploy IBM Cognos BI Samples and Student Data	SI-36	10 mins.	



<b>Setup</b>	<b>Page</b>	<b>Est. Time</b>	<b>Complete</b>
Add Data Sources	SI-38	10 mins.	
Restrict Access to Administrative Tools.	SI-40	2 mins.	
Add Users to the to the Authors Role and Restrict Access to Other Roles	SI-41	2 mins.	
Create Groups in the Cognos Namespace and Add Users to Groups	SI-42	2 mins.	
Assign the Report Administrators Role to the Drill Through Assistant Capability	SI-43	2 mins	
Enable the Allow External Data Capability on Packages	SI-44		
Allow External Data Capabilities for Roles	SI-45		
Modify the AssignStaff stored procedure in the GS_DB Database	SI-46	2 mins.	
Run the B5159_Event_Studio_Modify_GOSALES.txt Script	SI-47	2 mins.	
Ensure Simple File Sharing is Off (VMWare images only)	SI-48	2 mins.	
<b>Total Time for setup</b>		<b>2 hrs. 30 mins.</b>	

## Additional Browser Configuration

### Task 1. Configure Internet Explorer 7.

1. Open **Internet Explorer**.
2. From the **Tools** menu, point to **Pop-up Blocker**, and then click **Turn Off Pop-up Blocker**.
3. From the **Tools** menu, click **Internet Options**.
4. Click the **Security** tab, and then under **Select a zone to view or change security settings**, click **Internet**.
5. Click **Custom level**, and then scroll to the **Scripting** settings.
6. Under **Allow Programmatic clipboard access**, click **Enable**.
7. Scroll to the **Downloads** settings.
8. Under **Automatic prompting for file downloads**, click **Enable**.
9. Click **OK**, click **Yes**, and then close the **Internet Options** window.
10. Close **Internet Explorer**.

# Install DB2 Express Version 9.7

## Task 1. Install DB2 Express.

Note: You must be logged on to the local machine with Administrative privileges to perform the installation.

The course has been developed and tested using DB2 Express 9.7. The installation files are not provided in the image or as student data.

1. In **Windows Explorer**, navigate to the location of the **DB2 Express** installation files, and then double-click **setup.exe**.
2. Click **Install a Product**, and then click **Install New**.
3. Click **Next**.
4. Click **I accept the terms in the license agreement**, and then click **Next**.
5. Ensure **Typical** (default) is selected, and then click **Next**.
6. Click **Install IBM DB2 Express Edition on this computer**, and then click **Next**.
7. Choose the directory to install DB2, and then click **Next**.
8. In the **Password** and **Confirm password** boxes, type **Education1!**, and then click **Next**.
9. Leave **DB2** in the **DB2 instances** box, and then click **Next**.
10. Click **Install**.
11. Click **Next**, click **Finish**, and then click **Exit**.

## Ensure Internet Information Services is Installed

### Task 1. Ensure you have Internet Information Services installed.

1. Open **Control Panel**, and then double-click **Add or Remove Programs**.
2. Click **Add/Remove Windows Components**.
3. Ensure the **Internet Information Services (IIS)** check box is selected.
4. Highlight **Internet Information Services (IIS)**, and then click **Details**.
5. Ensure all of the check boxes for the subcomponents are selected.
6. If any of the check boxes are grayed out, highlight the subcomponent, click **Details**, and then select all of the check boxes.
7. When you are finished, close all of the dialog boxes, and then close **Control Panel**.

# Install and Configure Apache Directory Server

## Task 1. Install Apacheds-1.5.7-setup.exe.

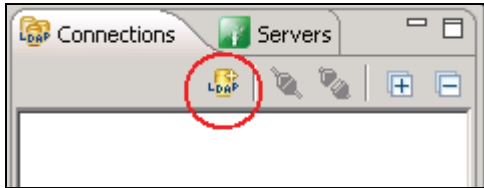
1. Double-click the **Apacheds-1.5.7-setup.exe** file to begin the installation process.
2. Click **Next** in the **Setup** wizard window.
3. Click **I Agree** in the license window.
4. Click **Next**.
5. Accept the default install path for **Server Home Directory**, and then click **Next**.
6. Accept the default install path for **Server Instances Home Directory**, and then click **Next**.
7. Click **Install**.
8. Click **Next**.
9. Click **Finish**.
10. Click **Yes** to start the directory server.
11. Click **Finish**.

## Task 2. Install Apache Directory Studio.

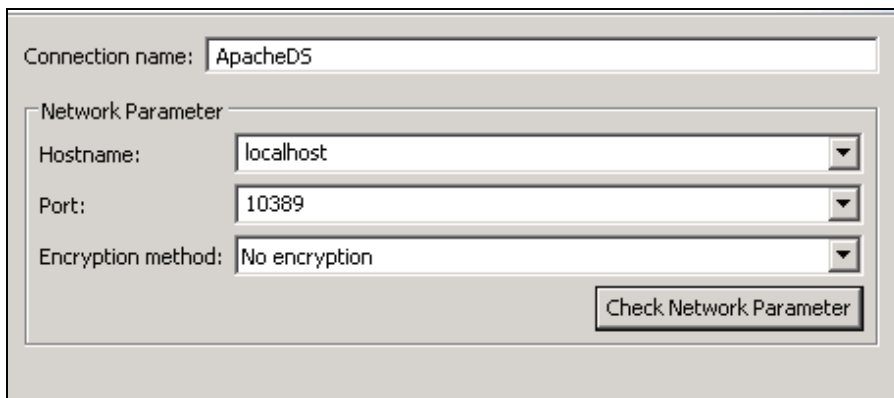
1. Double-click the **ApacheDirectoryStudio-win32-1.5.3.v20100330.exe** file.
2. Click **Next**.
3. Click **I Agree** on the license page.
4. Accept the default install path, and then click **Install**.
5. Click **Next**.
6. Click **Finish**.

### Task 3. Configure Apache Directory Studio.

1. Open **Apache Directory Studio** by navigating to **Start\All Programs\Apache Directory Studio\Apache Directory Studio**.
2. Close the **Welcome** window.
3. Select the **Connections** tab, and then click **New Connections**.



4. Ensure that the following settings are specified, and then click **Check Network Parameter**. You will update the Port setting later.



Connection name: ApacheDS

Network Parameter

Hostname: localhost

Port: 10389

Encryption method: No encryption

Check Network Parameter

5. Click **OK** to close the **Check Network Parameter** window.
6. Click **Next**.

7. Ensure that the following settings are specified, and then click **Check Authentication**. Type **secret** as the password, and ensure that you deselect **Save Password**.

Authentication Method: Simple Authentication

Authentication Parameter:

Bind DN or user: uid=admin,ou=system

Bind password: [masked]

☐ Save password

Check Authentication

► SASL Settings

► Kerberos Settings

8. Click **OK**
9. Click **Finish**.
10. If prompted, re-type the password (**secret**) to confirm the password.
11. Expand **ou=system** and click **uid=admin**.
12. In **Attribute Description**, double click **userPassword**.
13. Click the **New Password** tab and type **admin1234** in the **Enter New Password** box.

You can click the **Show new password details** check box to ensure that you typed the correct password. Once you have ensured the correct password, deselect the check box again.

Current Password | **New Password**

Enter New Password: admin1234

Select Hash Method: SHA

Password Preview: {SHA}e5Aub/Hbn1YEQ/IEiXT9fThpdbA=

Password (Hex): 7b902e6ff1db9f560443f2048974fd7d386975b0

Salt (Hex): -

☒ Show new password details

New Salt

14. Click **OK**.
15. Right-click the **ApacheDS** connection, and then click **Properties**.
16. Click the **Authentication** tab, click **Save Password**, and then type **admin1234** in the **Bind password** area.
17. Check **Authentication**.
18. Click **OK**.
19. Click **OK** to close the **Connection** window.
20. In **Windows Explorer**, navigate to **C:\Program Files\Apache Directory Server\instances\default\conf**, and then open the **server.xml** file.
21. Under **partitions**, make the following changes:

```
<partitions>
<!-- NOTE: when specifying new partitions you need not include those -->
<!-- attributes below with OID's which are the system indices, if left -->
<!-- out they will be automatically configured for you with defaults. -->
<jdbmPartition id="cognos" cacheSize="100" suffix="dc=cognos,dc=com" optimizerEnabled="true"
syncOnWrite="true">
</indexedAttributes>
```

22. Under **LDAP Services configuration**, make the following change

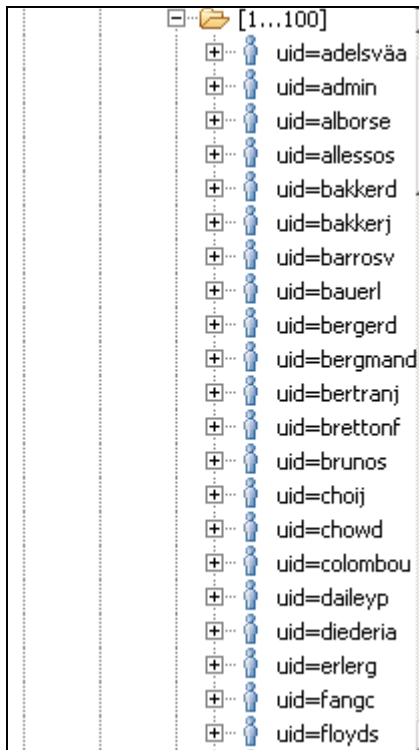
```
<transports>
<tcpTransport address="0.0.0.0" port="389" nbThreads="8" backlog="50" enableSSL="false"/>
<tcpTransport address="localhost" port="10636" enableSSL="true"/>
</transports>
```

23. Save and close the file.
24. In the **Services** window, stop and start the Apache Directory Server.
25. In **Apache Directory Studio**, right-click the **ApacheDS** connection, and then click **Properties**.
26. Change the **Port** from **10389** to **389**.
27. Click **Check Network Parameter**.
28. Click **OK**, and then click **OK** to close the Properties window.
29. In the **LDAP Browser**, right-click **DIT**, select **Import**, and then click **LDIF Import**.



30. When the **LDIF Import** window opens, browse to **C:\Edcognos\B5159\Instructor Files**, and then click **LDAP-int.ldif**.
31. Click **Open**, and ensure **ApacheDS** is selected as **Import into**.
32. Click **Finish**.
33. In the LDAP Browser right-click **DIT**, select **Import**, and then click **LDIF Import**.
34. When the **LDIF Import** window opens, browse to **C:\Edcognos\B5159\Instructor Files**, and then click **LDAP Accounts.ldif**.
35. Click **Open**, and then click **Finish**.

36. Expand **dc=Cognos,dc=com**, and then expand **ou=People** to ensure that all of the accounts were added:



Note: the users required in this course are:

Johan Bakker	Ana Orozco
Frank Bretton	Sally White
Donald Chow	Assistant Manager
Branka Hirsch	Corey Wright
Fritz Hirsch	Fei Meng
Bart Scott	Pierre Lavoie
John Sinden	He Teo
David Smythe	Mattias wallgren
Alessandra Torta	Bjorn Winkler
Alice Walters	Sylvie Leyder

37. Close **Apache Directory Studio**.

## Create Users in the NTLM Authentication Provider

Note: as an alternative to manually creating users, you can automate this by running the Create NTLM Users.vbs script. This script requires the Users.txt file. Both are provided as instructor data located at C:\Edcognos\B5159\Instructor Files. Running this script creates all NTLM users required for all Cognos BI courses. If you only require selected users appropriate to your course, then proceed with creating the users manually.

Note: the Create NTLM Users.vbs script is used to create the GES Classroom VMWare common product image

1. From the **Start** menu, click **Control Panel**, and then double-click **Administrative Tools**.
2. Double-click **Computer Management**.
3. Expand **Local Users and Groups**.
4. Right-click **Users**, and then click **New User**.
5. In the **User name** box, type **admin** and then in the **Full Name** box, type **Admin Person**.
6. In the password and confirm password boxes, type **Education1!**.
7. Clear the User must change password at next logon check box, select the Password never expires check box, and then click **Create**.
8. Repeat steps 4 to 7 to create the following users:
  - User name: **C10User**, Full name: **C10 User**, Password: **Education1!**
  - User name: **GOSALES**, Full name: **GO SALES**, Password: **Education1!**
  - User name: **GOSALESDW**, Full name: **GO SALES DW**, Password: **Education1!**
9. Click **Close** to close the dialog box.
10. In the left pane, click **Users**, to ensure that the users have been added.
11. Close **Computer Management** and **Administrative Tools**.

## Configure the Web Server

### Task 1. Change default port number for Web Server.

1. From **Control Panel**, open **Administrative Tools**, and then open **Internet Information Services**.
2. In the left pane, expand **<computer name>**, and then expand **Web Sites**.
3. Right-click **Default Web Site**, and then click **Properties**.
4. In the **TCP Port** box, type **88**, and then click **OK**.
5. Leave the **Internet Information Services** window open.

# Install and Configure Lotus Domino Server 8.5.1 and Lotus iNotes

## Task 1. Stop SMTP.

1. Open **Control Panel**, and then double-click **Administrative Tools**.
2. Double-click **Services**, and then disable the **Simple Mail Transport Protocol (SMTP)** service.

## Task 2. Install Lotus Domino Server.

1. Double-click **setup.exe** program.
2. In the **Lotus Domino Installer**, click **Next**.
3. Click **I accept the terms in the license agreement**, and then click **Next**.
4. In the **Program Files Directory Name** box, specify the install drive (D: is used for VMWare image creation), accept the remaining default directory, and then click **Next**.
5. In the **Data Files Directory Name** box, accept the default directory, and then click **Next**.
6. In the **Choose the setup type that best suits your needs** screen, accept the default of **Domino Enterprise Server**, and then click **Next**.
7. Click **Next**, and then click **Finish**.

### Task 3. Configure Lotus Domino Server.

1. On the Desktop, double-click Lotus Domino Server.
2. On the **Welcome to Domino Server Setup!** screen, click **Next**.
3. On the **First or additional server** screen, accept the default of **Set up the first server or a standalone server**, and then click **Next**.
4. On the **Provide a server name and title** screen, in the **Server name** box, leave the default **<computer name>**, and then click **Next**.
5. On the **Choose your organization** screen, in the **Organization name** box, type **<your organization name>** (IBM is used for VMWare image creation), and then in the **Organization Certifier password** and **Confirm password** boxes, type **Education1!**.
6. Click **Next**.
7. In the **Domino domain name** box, type **grtd123**, and then click **Next**.
8. On the **Specify an Administrator name and password** screen, set the following  
First Name: **Admin**  
Last name (or generic account name): **Person**  
Administrator password: **Education1!**  
Confirm password: **Education1!**
9. Select the **Also save as local copy of the id file** check box, and then click **Next**.
10. On the **What Internet services should this server provide** screen, under **Set Internet services for**, select the **Web Browsers (HTTP services)** and **Internet Mail Clients (SMTP POP3, and IMAP services)** check boxes, and then deselect the **Directory service (LDAP services)** check box.
11. Click **Next**.

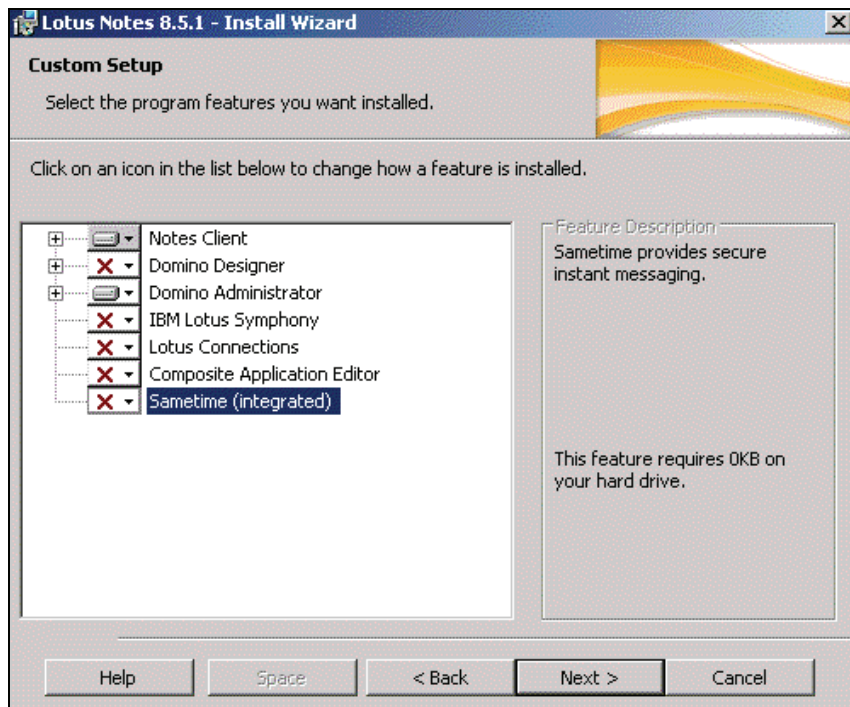
12. On the **Domino network settings** screen, click **Customize**.
13. In the Advanced Network Settings dialog box, in the **Type the fully qualified internet host name for this Domino server** box, type **localhost.localdomain**.
14. Click **OK**, and then click **Next**.
15. On the **Secure your Domino Server** screen, deselect the **Prohibit Anonymous access to all databases and templates** check box, and then click **Next**.
16. On the **Please review and confirm your chosen server setup options** screen, click **Setup**.
17. On the **Setup summary** screen, click **Finish**.

#### **Task 4. Install the Lotus Domino Administration client.**

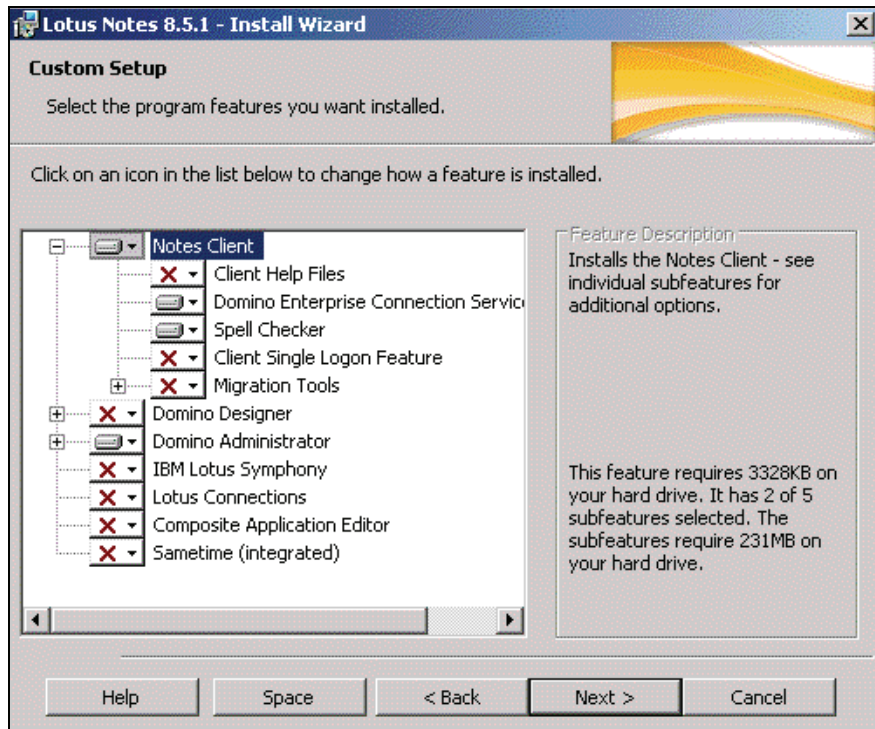
1. Double-click **setup.exe**.
2. In the **Lotus Notes 8.5.1 - Install Wizard**, click **Next**.
3. Click **I accept the terms in the license agreement**, and then click **Next**.
4. On the **Customer Information** screen, leave the defaults, and then click **Next**.
5. On the **Installation Path Selection** screen, under **Install program files to**, click **Change**.
6. On the **Change Program Destination Folder** screen, in the **Folder name** box, specify the install drive (D: is used for VMWare image creation), accept the remaining default directory, and then click **OK**.
7. Under **Install data files to**, click **Change**.
8. In the **Folder name** box, specify the install drive (D: is used for VMWare image creation), accept the remaining default directory, and then click **OK**.
9. Click **Next**.

10. In the **Custom Set Up** screen, specify the following install components:

Do not install **Sametime (Integrated)**

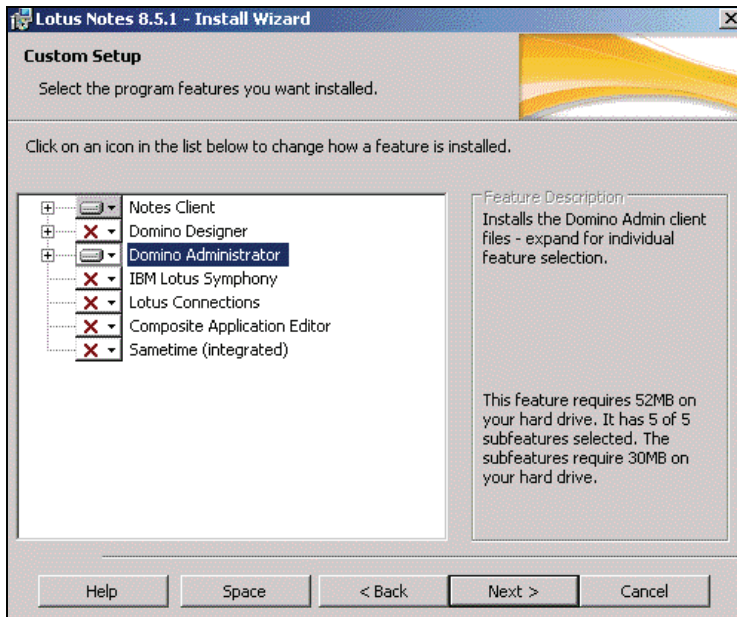


Under **Notes Client**, do not install **Client Help Files**





For **Domino Administrator**, ensure that **This feature, and all subfeatures, will be installed on the local hard drive**, is selected.



11. Click **Next**.
12. On the **Ready to Install the Program** screen, deselect all check boxes, and then click **Install**.
13. Click **Finish**.

## **Task 5. Install the Lotus Domino Administration client fix pack.**

1. Double-click **setup.exe**.
2. In the **Lotus Notes 8.5.1 FP2 Install Wizard**, click **Next**.
3. Click **I accept the terms of the license agreement**, and then click **Next**.
4. Click **Next** to install, and then click **Install**.
5. Click **Finish**.

## Task 6. Start Domino Server and configure Lotus Domino Administration client.

1. On the Desktop, double-click Lotus Domino Server.
2. Accept the default of **Start Domino as a Windows Service**, select the **Don't ask me again** check box, and then click **OK**.

The Domino Server starts as seen in the Command Window. The server completes start up when the HTTP Server: Started message appears.

3. Minimize the Command Window.
4. On the **Desktop**, double-click **Domino Admin 8.5**.
5. On the **Welcome** screen, click **Next**.
6. On the **User Information** screen, in the **Your Name** box, type **Admin Person**, in the **Domino server** box, type **<computer name>/IBM**, and then ensure that the **I want to connect to a Domino Server** check box is selected.
7. Click **Next**.
8. In the **Password** box, type **Education1!** And then click **Log in**.
9. On the **Instant Messaging Setup** screen, deselect the **Setup instant messaging** check box, and then click **Next**.
10. On the **Additional Services** screen, ensure that nothing is selected, click **Finish**, and then click **OK**.
11. Select the **In the future, do not perform this check** check box, and then click **No**.
12. On the **Welcome** page, select the **Don't show this again** check box, and then click **Close this page**.

## Task 7. Create Users

1. In the left pane, on the **People & Groups** tab, expand **Domino Directories > grtd123's Directory**, and then click **People**.
2. In the middle pane, ensure that the **Admin Person** user is selected and then click **Edit Person**.
3. Click in the box beside **Internet address**, and then type **admin@grtd123.com**
4. Click **Save and Close**.
5. In the right pane, expand **People**, and then click **Register**.
6. Click **Certifier ID**, and then navigate to **<install drive>:/Program Files/IBM/Lotus/Domino/data**.
7. Click **cert.id**, click **Open**, and then click **OK**.
8. In the **Certifier password** box, type **Education1!**, and then click **OK**.
9. In the right pane, click **Register**.
10. In the **Register Person - New Entry** dialog box, specify the following properties:  
 First Name: **Donald**  
 Last Name: **Chow**  
 Password: **Education1!**
11. Click **Password Options**, drag the **Password Quality Scale** to **Weak**, and then deselect the **set internet password** check box, click **OK**.
12. In the **Mail system** list, click **Lotus iNotes**, and then click **Yes** to changing other registration settings.
13. Select the **Advanced** check box, and then in the left pane, click **Address**.
14. On the **Mail Internet Address Information** pane, specify the following properties:  
 Internet address: **DChow@grtd123.com**  
 Internet Domain: **grtd123.com**  
 Address name format: **FI LastName**

15. Click the green check mark to add the user to the **Registration Queue (local)** box, and then click **Register**.
16. Click **OK**, and then in the left pane, click **Basics**.
17. Repeat steps **11** to **17** to register additional users:

First Name	Last Name	Internet Address
Frank	Bretton	FBretton@grtd123.com
Ana	Orozco	AOrozco@grtd123Branka.com
Bart	Scott	BScott@grtd123.com
Sally	White	SWhite@grtd123.com
Assistant	Manager	AManager@grtd123.com
Corey	Wright	CWright@grtd123.com
Alice	Walter	AWalter@grtd123.com
Fei	Meng	Fmeng@grtd123.com
Pierre	Lavoie	PLavoie@grtd123.com
John	Sinden	JSinden@grtd123.com
Alessandra	Torta	ATorta@grtd123.com
He	Teo	HTeo@grtd123.com
Mattias	Wallgren	MWallgren@grtd123.com
Dave	Smythe	DSmythe@grtd123.com
Fritz	Hirsch	FHirsch@grtd123.com
Bjorn	Winkler	BWinkler@grtd123.com
Johan	Bakker	JBakker@grtd123.com
Sylvie	Leyder	SLeyder@grtd123.com

At step 14, you do not have to select the Advanced check box because that option stays selected when you are registering additional users.

18. Click **Done** to close the **Register Person - New Entry** box.
19. In the left pane, click **grtd123's Directory**, and then click **People**, to view the new users.

## **Task 8. Configure Lotus Domino Server to recognize the grtd123.com domain.**

1. Click the **Configuration** tab, and then in the left pane, expand **Messaging**.
2. Click **Domains**, and then click **Add Domain**.
3. In the **Domain Type** list, click **Global Domain**, and then click **OK**.
4. In the **Global domain name** box, type **Great Outdoors**.
5. In the **Global domain role** list, select the **R5/R6/R7/R8 Internet Domains** check box, and then click **OK**.
6. Beside **Use as default Global Domain**, select the **Yes** check box.
7. Click the **Restrictions** tab, and then in the **Domino domains and aliases** box, type **grtd123.com**.
8. Click the **Conversions** tab, and then in the **Local primary Internet domain** box, type **grtd123.com**, and then click **Save and Close**.
9. Close **IBM Domino Administrator**.

## **Task 9. Open Lotus iNotes.**

1. Open **Internet Explorer**, in the **Address** box, type **http://localhost/mail/aperson.nsf** and then press **Enter**.
2. In the **User Name** box, type **Admin Person**, in the **Password** box, type **Education1!**, and then click **OK**.
3. If prompted to set up **Phishing Filter**, click **turn off automatic Phishing Filter**, and then click **OK**.
4. Click **OK** to accept the warning message that IBM Lotus Notes detected an unknown time zone.
5. In the left pane, click **Mail**.

## Create the IBM Cognos BI Content Store and Samples Database

### Task 1. Create the IBM Cognos BI Content Store database.

You must be logged on to the local machine with administrative privileges to perform this task.

This task does not generate the tables or populate the content store database. Table generation and population occur when the IBM Cognos Service is started for the first time.

1. In **Windows Explorer**, navigate to **C:\Edcognos\B5159\Instructor Files**, and then double-click **DB2 Script - Create & Config C10 Content Store.txt**, copy the contents to the clipboard, and then close **Notepad**.
2. From the **Start** menu, point to **All Programs>IBM DB2>DB2COPY1 (Default)>Command Line Tools**, and then click **Command Editor**.

3. At the prompt, paste the contents of the clipboard, and then from the **Selected** menu, click **Execute**.

The results appear as follows:

The results appear as follows:

```
GRANT CREATETAB,BINDADD,CONNECT,IMPLICIT_SCHEMA On DATABASE TO USER C10User;
GRANT CREATEIN,DROPIN,ALTERIN ON SCHEMA TO USER C10User WITH GRANT OPTION;
GRANT USE OF TABLESPACE c10_USR_TEMP TO USER C10User;
CONNECT RESET;
TERMINATE;
```

```
GRANT CREATETAB,BINDADD,CONNECT,IMPLICIT_SCHEMA On DATABASE TO USER C10User
DB20000I The SQL command completed successfully.
```

```
GRANT CREATEIN,DROPIN,ALTERIN ON SCHEMA TO USER C10User WITH GRANT OPTION
DB20000I The SQL command completed successfully.
```

```
GRANT USE OF TABLESPACE c10_USR_TEMP TO USER C10User
DB20000I The SQL command completed successfully.
```

```
CONNECT RESET
DB20000I The SQL command completed successfully.
```

```
TERMINATE
DB20000I The SQL command completed successfully.
```

4. Close Command Editor.
5. In Windows Explorer, navigate to <DB2 install drive>:\Program Files\IBM\SQLLIB\java, and then copy the db2jcc.jar and db2jcc\_license\_cu.jar files.
6. Navigate to <c10 install drive>:\Program Files\IBM\cognos\c10\webapps\p2pd\WEB-INF\lib, and then paste the db2jcc.jar and db2jcc\_license\_cu.jar files.

## Task 2. Create and populate the DB2 samples database.

1. In **Windows Explorer**, navigate to <c10 install drive>:\Program Files\IBM\cognos\c10\webcontent\samples\datasources\db2, and then double-click **GS\_DB.tar.gz**.
2. Click **Yes** when prompted for WinZip to decompress to a temporary folder and open.
3. Extract the contents of the file to c10 install drive>:\Program Files\IBM\cognos\c10\webcontent\samples\datasources\db2.

This produces a folder called GS\_DB at the location noted above.

Note: for VMWare image creation, because WinZip is not installed in the image, you will have to extract the contents of GS\_DB.tar.gz outside the image, and then move the GS\_DB folder to the location noted above.

4. Navigate to **GS\_DB >win**, and then double-click **setupGSDB.bat**.
5. In the command window, press **Enter** to accept the default database name of **GS\_DB**.
6. Press **Enter** to create the **GS\_DB** database.
7. At the prompt type **db2admin** as the DB2 administration user name, and then press **Enter**.
8. Press **Enter** to accept the default database creation settings.

The script begins to run.



9. At the **Enter current password for db2admin** prompt, type **Education1!**, and then press **Enter**.

The script begins to run again. When the script finishes, the results appear as follows:

```
Creating database GS_DB
Connecting to GS_DB
Enter current password for db2admin:
```

#### Database Connection Information

```
Database server          = DB2/NT 9.7.0
SQL authorization ID     = DB2ADMIN
Local database alias     = GS_DB
```

```
Creating bufferpool and tablespace.
Creating tables.
Loading data.
Creating primary keys
Creating indexes
Creating constraints.
Creating stored procedures
Creating views
Granting permissions
Updating statistics
Verifying row counts
Table row count validation successful
Adding table comments
```

10. Close the command window.

### **Task 3. Create and populate the CSTATD DB2 samples database.**

1. In **Windows Explorer**, navigate to **C:\Edcognos\B5159\Instructor Files**, and then double-click **DB2 Script - Create & Config C10 Statistics DB.txt**, copy the contents to the clipboard, and then close **Notepad**.
2. From the **Start** menu, point to **All Programs > IBM DB2 > DB2COPY1 (Default) > Command Line Tools**, and then click **Command Editor**.

3. At the prompt, paste the contents of the clipboard, and then from the **Selected** menu, click **Execute**.

A section of the results appear as follows:

```
CREATE SCHEMA C10User AUTHORIZATION C10User
DB20000I The SQL command completed successfully.
```

```
CONNECT RESET
DB20000I The SQL command completed successfully.
```

```
TERMINATE
DB20000I The TERMINATE command completed successfully.
```

4. In **Windows Explorer**, navigate to **<c10 install drive>:\Program Files\IBM\cognos\c10\webcontent\samples\datasources\db2**, and then double-click **CSTATD.tar.gz**.
5. Click **Yes** when prompted for WinZip to decompress to a temporary folder and open.
6. Extract the contents of the file to **<c10 install drive>:\Program Files\IBM\cognos\c10\webcontent\samples\datasources\db2**.

This produces a folder called CSTATD at the location noted above.

Note: for VMWare image creation, because WinZip is not installed in the image, you will have to extract the contents of CSTATD.tar.gz outside the image, and then move the CSTATD folder to the location noted above.

7. To use the DB2 move command to restore the CSTATD database, open a command window, and at the prompt, navigate to the extracted **CSTATD** directory.

You will have to use DOS commands like <drive letter>: to change to a different drive, and cd <path> to change to a different directory.

8. From the CSTATD prompt, and type the following move command, "**<DB2 install path>\db2move**" CSTAT import, and then press **Enter**.

For example:

```
"D:\Program Files\IBM\SQLLIB\BIN\db2move" CSTATD import -u
db2admin -p "Education1!"
```

The script begins to run. When the script finishes, a section of the results appear as follows:

```
* IMPORT:  table "CSTATD  "."SH_SHIFT_LOOKUP"
  -Rows read:           33
  -Inserted:           33
  -Rejected:            0
  -Committed:          33
```

```
Disconnecting from database ... successful!
```

9. Close all open windows.

## Set up Web Aliases

### Task 1. Set up aliases for IBM Cognos 10.

1. In **Internet Information Services**, in the left pane, expand **Default Web Site**, right-click **Default Web Site**, point to **New**, and then click **Virtual Directory**.
2. Click **Next**.
3. Under **Alias**, type **ibmcognos**, and then click **Next**.
4. Browse to <c10 install drive>:\Program Files\IBM\cognos\c10\webcontent, click **OK**, and then click **Next**.
5. Deselect the **Run scripts** check box, so only **Read** is selected, and then click **Next**.
6. Click **Finish**.
7. Right-click the **ibmcognos** virtual directory folder, point to **New**, and then click **Virtual Directory**.
8. Click **Next**.
9. Under **Alias**, type **cgi-bin**, and then click **Next**.
10. Browse to <c10 install drive>:\Program Files\IBM\cognos\c10\cgi-bin, click **OK**, and then click **Next**.
11. Select the **Execute** check box, deselect the **Read** and **Run scripts** check boxes, and then click **Next**.
12. Click **Finish**.

### Task 2. Give browse access to images.

1. Expand the **samples** folder.
2. Right-click **images**, and then click **Properties**.
3. In the **images Properties** dialog box under the **Directory** tab, select the **Directory browsing** check box.
4. Click **OK**.
5. Start the **Default Web Site**.
6. Close **Internet Information Services**, and then close **Administrative Tools**.

## Configure IBM Cognos BI

### Task 1. Configure the LDAP provider.

1. From the **Start** menu, point to **All Programs>IBM Cognos 10**, and then click **IBM Cognos Configuration**.
2. In the **Explorer** pane, right-click **Authentication**, point to **New resource**, and then click **Namespace**.
3. In the **New Namespace** dialog box, under **Name**, type **LDAP**, and then in the **Type** list, click **LDAP**.
4. Click **OK**.
5. In the **Properties** pane, specify the following properties:  
Note: press **Enter** after setting each property.  
Namespace ID: **LDAP\_ID**  
Host and port: **localhost:389**  
Base Distinguished Name: **dc=cognos, dc=com**  
User lookup: **uid=\${userID},ou=People**
6. In the **Explorer** pane, under **Authentication**, click **Cognos**.
7. Change the **Allow anonymous access** setting to **False**.
8. Click **Authentication**, and then change the **Inactivity timeout in seconds** property to **86400**.



This step will extend the session time out period to 24 hours so that students do not have to constantly log on during the day.

## Task 2. Add Global Setting to Save Files to the Server.

1. In the left pane, below **Data Access**, click **Content Manager**.
2. In the right pane, set **Save report outputs to a file system?** to **True**.
3. From the **Actions** menu, click **Edit Global Configuration**, and then click the **General** tab.
4. Beside **Archive Location File System Root**, type **file:///C:/Edcognos**  
Note: The directory C:\Edcognos must already exist.
5. Click **Test**, click **Close**, and then click **OK**.

## Task 3. Configure the IBM Cognos BI Components.

1. In the **Explorer** pane, click **Notification**, and then in the **Properties** pane, set the following properties:  
SMTP mail server: **localhost:25**  
User ID and password:  
    User ID: **Admin Person**  
    Password: **Education1!**  
Default sender: **admin@grtd123.com**
2. In the **Explorer** pane, right-click **Notification**, and then click **Test**.
3. When the test completes successfully, click **Close**.
4. Return to **IBM Cognos Configuration**, in the **Explorer** pane, expand the **Data Access** node and the **Content Manager** component reference if necessary, and then click **Content Store**.
5. In the **Properties** pane, set the following properties:  
Database server and port number: **localhost:50000**  
Database name: **cm**  
User ID and password:  
    User ID: **C10User**  
    Password: **Education1!**

6. In the **Explorer** pane, right-click **Content Store**, and then click **Test**.
7. After successful completion of the test, click **Close**.
8. In the **Explorer** pane, click **Environment**, and then in the **Properties** pane, set the **Gateway URI** property to **http://localhost:88/ibmcognos/cgi-bin/cognos.cgi**
9. Click **Save configuration**. 
10. Click **Close**.
11. Click **Start**  to start the IBM Cognos service.
12. When all services are started, click **Close**.
13. Close **IBM Cognos Configuration**.

## Deploy IBM Cognos BI Samples and Student Data

### Task 1. Prepare for deployment.

1. In **Windows Explorer**, navigate to <c10 install drive>:\ **Program Files\IBM\cognos\c10\ webcontent\samples\content**.
2. Copy the following files:  
**IBM\_Cognos\_DrillThroughSamples.zip**  
**IBM\_Cognos\_PowerCube.zip**  
**IBM\_Cognos\_Statistics**
3. Navigate to <c10 install drive>:\ **Program Files\cognos\c10\deployment**, and then paste the zip files.
4. Navigate to **C:\Edcognos\B5159\Instructor Files**, copy **B5159\_Content.zip** and **IBM\_Cognos\_Samples.zip**, and then paste to <c10 install drive>:\ **Program Files\cognos\c10\deployment**.

### Task 2. Import the samples.

To ensure that the appropriate content is deployed, it is important that the .zip files are deployed in the order described in the following steps.


1. Open **Internet Explorer**, in the **Address** box, type **http://localhost:88/ibmcognos** and press **Enter**.
2. If required, in the **User ID** box, type **admin**, in the **Password** box, type **Education1!**, and then click **OK**.
3. On the **IBM Cognos software** page, click **Administer IBM Cognos content**.
4. Click the **Configuration** tab, and then click **Content Administration**.
5. On the toolbar, click **New Import**.



6. On the **Select a deployment archive** page, select the **IBM\_Cognos\_Samples** archive, and then click **Next**.
7. On the **Specify name and description** page, click **Next**.
8. On the **Select the public folders content** page, select the **Samples** check box, and then click **Next**.
9. On the **Specify the general options** page, click **Next**.
10. On the **Review the summary** page, click **Next**.
11. On the **Select an action** page, ensure **Save and run once** is selected, and then click **Finish**.
12. On the **Run with options** page, ensure **Now** is selected, click **Run**, and then click **OK**.
13. Repeat steps **5** to **12** for the **IBM\_Cognos\_Drill\_Through\_Samples.zip** deployment.
14. Repeat steps **5** to **12** for the **IBM\_Cognos\_Statistics** deployment.
15. Repeat steps **5** to **12** for the **IBM\_Cognos PowerCube.zip** deployment.
16. Repeat steps **5** to **12** for the **B5159\_Content** archive. At step 8, select the **B5158, B5159, B5158\_Solutions, B5159\_Solutions** folders.
  - B5158 and B5159 are the course folders that will be imported into Public Folders, containing starting point reports for many demos and workshops.
  - B5158\_Solutions and B5159\_Solutions contain the solution reports for all demos and workshops.

## Add Data Sources

### Task 1. Create data sources.

1. In the left pane, click the **Data Source Connections** tab.
2. Click **New Data Source** .
4. Under **Name**, type **great\_outdoors\_sales** and then click **Next**.
5. In the **Type** list, click **IBM DB2**, and then click **Next**.
6. Under **DB2 database name**, type **GS\_DB**
7. Under **Signons**, select the **Password** check box.
8. In the **User ID** box, type **GOSALES**, and in the **Password** and **Confirm password** boxes, and then type **Education1!**
9. Click **Test the connection**, and then click **Test**.
10. Click **Close**, click **Close** again, then click **Finish**, and then click **OK**.
11. Repeat steps 2 to 10 to create the following data sources

Name: **great\_outdoors\_warehouse**

Type: **IBM DB2**

Database name: **GS\_DB**

Signon with Password:

User ID: **GOSALESDW**

Password: **Education1!**

Name: **statistics**

Type: **IBM DB2**

Database name: **CSTATD**

Signon with Password:

User ID: **DB2ADMIN**

Password: **Education1!**

12. Add a cube data source:

Name: **sales\_and\_marketing**

Type: **IBM Cognos PowerCube**

Windows location: **<c10 install drive>:\Program Files\cognos\c10\webcontent\samples\datasources\cubes\PowerCubes\EN\sales\_and\_marketing.mdc**

13. Test the connection.

14. Click **Finish**, and then click **OK**.

15. Repeat steps **12 - 14** to add another cube data source

Name: **great\_outdoors\_sales\_en**

Type: **IBM Cognos PowerCube**

Windows location: **<c10 install drive>:\Program Files\cognos\c10\webcontent\samples\datasources\cubes\PowerCubes\EN\ great\_outdoors\_sales\_en.mdc**

## Restrict Access to Administrative Tools

### Task 1. Restrict access to administrative tools.

1. Click the **Security** tab.
2. Under the **Name** column, click **Cognos**, click **Next Page**, and then beside the **System Administrators** role, click **Set properties**.
3. Click the **Members** tab.
4. Click **Add**, select the **Show users in the list** check box, and then click **LDAP**.
5. Select the **Admin Person (admin)** check box, click **Add** (green arrow), and then click **OK**.
6. Select the **Everyone** check box, click **Remove**, and then click **OK**.

## Add Specific Users to Groups and Restrict Access to Other Groups

### Task 1. Add specific users to Groups and restrict access to other Groups.

1. Click **First Page**, and then beside **Authors**, click **Set properties - Authors**.
2. Click the **Members** tab, and then click **Add**.
3. Select the **Show users in the list** check box, then click **LDAP**, and then click **People**.
4. Click **Next Page** twice, select the **Frank Bretton (brettonf)** check box, and then click **Add** (green arrow).
5. Click **OK**.
6. Select the **Everyone** check box, click **Remove**, and then click **OK**.
7. Add **Jeff Waters** to the **Directory Administrators** role.
8. Add **Frank Bretton** to the **Statistics Authors** role.
9. Add **Branka Hirsh** to the **Report Administrators** role.
10. Ensure that the **Everyone** group is removed from the following roles:
  - Adaptive Analytics Users
  - Analysis Users
  - Controller Users
  - Data Manager Authors
  - Express Authors
  - Metrics Authors
  - Metrics Users
  - Planning Contributor Users
  - PowerPlay Users
  - Query Users

## Create Groups in the Cognos Namespace and Add Users to Groups


### Task 1. Create Groups in the Cognos namespace and add users to Groups.

1. On the toolbar, click **New Group** .
2. In the **Name** box, type **Australia** and then click **Next**.
3. Click **Add**, click the **Show users in the list** check box, then click **LDAP**, and then click **People**.
4. Select the **John Sinden** check box, click **Add** (green arrow), and then click **OK**.
5. Click **Finish**.
6. Repeat steps 1 to 5 to create the following groups:

<u>Name</u>	<u>LDAP User</u>
Italy	Alessandra Torta
US	Bart Scott

Note: Users names are in alphabetical order by last name.

## Assign the Drill Through Assistant Capability to the Report Administrators Role

1. In the left pane, click **Capabilities**, and then beside the **Drill Through Assistant** capability, in the **Actions** list, click **Set properties** .
2. On the **Set properties - Drill Through Assistant** page, click the **Permissions** tab.
3. Click **Add**, and then add the **Report Administrators** role from the **Cognos** namespace to the **Selected entries** pane.
4. Click **OK**.
5. Grant **Execute** and **Traverse** permissions, and then click **OK**.
6. Close **IBM Cognos Administration**.

## Enable the Allow External Data Capability on Packages

Packages include permissions for allowing external data to be used or disallowed. By default, in the product sample packages, it is disallowed. By following these steps, you will permit the use of external data for two packages.

1. From the **Launch** menu, click **IBM Cognos Connection**, and then navigate to **Public Folders > Samples > Models**.
2. In the **Actions** column, beside **GO Data Warehouse (analysis)**, click **Set properties**.
3. Click the **Capabilities** tab, and then select the **Override the capabilities acquired from the parent entry with** check box.
4. Select the **Everyone** check box, and then under the **Grant** column, in the **Report Studio** section, select the **Allow External Data** check box.
5. Click **OK**.
6. Repeat steps 2 to 5 for the **GO Sales (query)** package.



## Allow External Data Capabilities for Roles

By default, in the product, permission to allow access to external data is turned off. By following these steps, you will permit the use of external data for Authors and Express Authors in Report Studio. Two User Interface Profiles are in place when you install IBM Cognos BI: Professional (Report Studio users, usually Authors), and Express (Business Insight Advanced users, usually Express Authors).

1. In **IBM Cognos Administration**, on the **Security** tab, click **Capabilities**, and then click **Last page**.
2. Click **Report Studio**, beside **Allow External Data**, click **Set properties**, and then click the **Permissions** tab.
3. Click **Add**, and then click **Cognos**.
4. Select the **Authors** and the **Express Authors** checkboxes, click **Add** (green arrow), and then click **OK**.
5. Select the **Everyone** check box, click **Remove**, and then click **OK**.
6. Select the **Override the access permissions acquired from the parent entry** check box.
7. Select the **Authors** and the **Express Authors** check boxes, and ensure grant them **Execute** and **Traverse** permissions.
8. Click **OK** to close the **Set properties** page.
9. Click **Log Off**, and close any open windows.

## Modify the AssignStaff Stored Procedure in the GS\_DB Database

1. Navigate to C:\Edcognos\B5159\Instructor Files; double click on the AssignStaff\_modified.bat file.

This batch file will call out and execute the AssignStaff\_modified.sql. The .sql file will drop the existing AssignStaff stored procedure. Remember, this stored procedure is created when you create and populate the samples GS\_DB database. It will then recreate the stored procedure including the modification. The modification includes adding hard coded date values in the DATE\_ADVISED column for some rows as specified by a where clause.

Note: the DATE\_ADVISED column is used in an Event Studio demo.

## Run the B5159\_Event\_Studio\_Modify\_GOSALES.txt Script.

### Task 1. Run the B5159\_Event\_Studio\_Modify\_GOSALES.txt Script

1. Navigate to **C:\Edcognos\B5159\Instructor Files\B5159\_Event\_Studio\_Modify\_GOSALES.txt** and open with **Notepad**.
2. From the **Edit** menu, click **Select All**.
3. From the **Edit** menu, click **Copy**, and then close **Notepad**.
4. From the **Start** menu, point to **All Programs, IBM DB2, DB2COPY1 (Default), Command Line Tools**, and then click **Command Editor**.
5. Click **Add**, select **GS\_DB**, and then click **OK**.
6. Right-click in the upper expression window, and click **Paste**.
7. From the **Toolbar** click **Execute**.  
The SQL command completed successfully.
8. Close the **Command Editor**.

## Ensure Simple File Sharing is Off

### Task 1. Ensure Simple File Sharing is off.

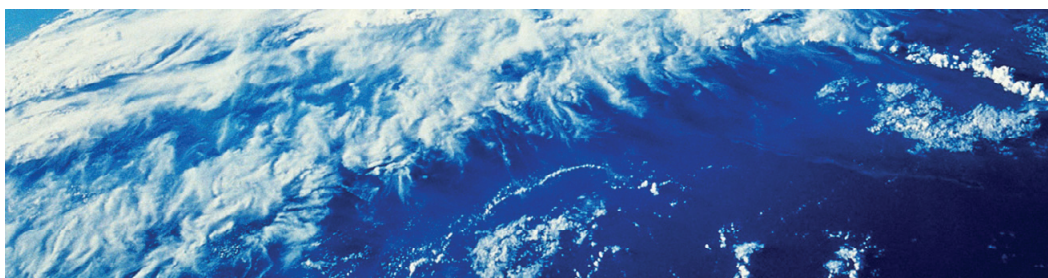
1. Open **Control Panel**.
2. Double-click **Folder Options**, click the **View** tab, and then deselect the **Use Simple File Sharing (Recommended)** check box.
3. Click **OK**, and then close **Control Panel**.



---

# Introduction

IBM Cognos BI



**Business Analytics**

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## Course Objectives

- At the end of this course, you should be able to:
  - use intermediate and advanced report building techniques
  - enhance and customize reports in Report Studio
  - create agents in Event Studio

- **Create Query Models**
- **Create the Reports Based on Query Relationships**
- **Distribute Reports Through Bursting**
- **Create Advanced Dynamic Reports**
- **Design Effective Prompts**
- **Enhance User Interaction with HTML**

IBM Cognos Report Studio: Author Professional Reports  
Advanced (v10.1)

**Cognos.**  
software

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In this course, Report Studio concepts and procedures are grouped into modules and presented in a logical and structured manner. The hands-on demonstrations and workshops provide the knowledge and skills you require to create, enhance, customize, and manage reports in Report Studio.

### **Audience:**

- Professional Report Authors

### **Prerequisites:**

- Knowledge of your business requirements
- Experience using the Windows environment and a Web browser
- Knowledge of XML (recommended)





- **Create Additional Advanced Reports**
- **Examine the Report Specification**
- **End-to-End Workshop**
- **Introduction to Event Studio**

## IBM Cognos Report Studio: Author Professional Reports Advanced (v10.1)



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## Additional Training

Bookmark [www.ibm.com/cognos/training](http://www.ibm.com/cognos/training) for details on:

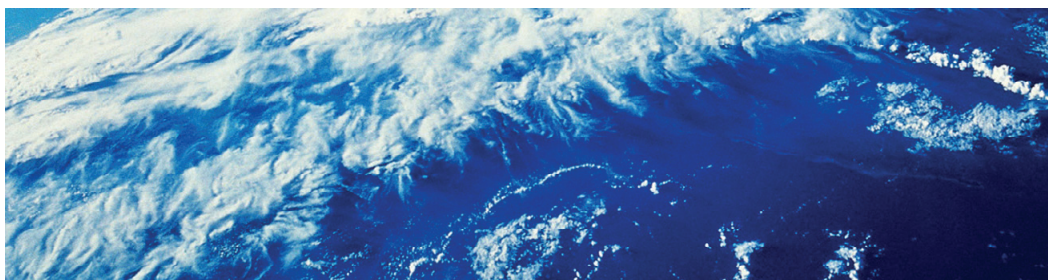
- instructor-led training in a classroom or online
- self-paced training that fits your needs and schedule
- comprehensive curricula and training paths that help you identify the courses that are right for you
- IBM Cognos Certification program
- other resources that will enhance your success with IBM Cognos software



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# Create Query Models

IBM Cognos BI



**Business Analytics**

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## Objectives

- At the end of this course, you should be able to:
  - build query models and then connect them to the report layout
  - edit a SQL statement to author custom queries
  - add filters and prompts to a report using the query model

If you intend to teach this module, students should be familiar with:

- Report Studio Basics
- List reports
- Crosstab reports
- Filters
- Prompts
- Calculations

Suggested modules to reference:

- Introduction to the Reporting Application
- Create List Reports
- Create Crosstab Reports
- Focus Reports Using Filters
- Focus Reports Using Prompts
- Extend Reports Using Calculations

**INTERACTION - Star Sticker:** Star each Objective as it is introduced.

# Create Queries Manually

**Process to create a query manually and then create reports using the query**



When building queries manually, you can:

- add data items to specify the data a query extracts from the data source
- specify data item properties
- add filters and slicers to exclude unnecessary data from the query and specify filter and slicer properties
- specify how a query will retrieve data by customizing its SQL or MDX statement
- combine results from different queries

It is a matter of personal preference whether the report author works in Page Explorer to create a report, or if they work in Query Explorer by first creating the query and then later applying the data items and calculations to the report layout.

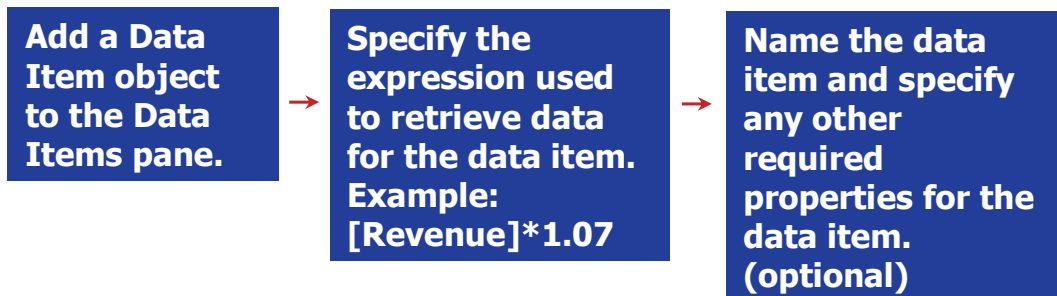
**INTERACTION - Toolbar Emoticons > Raise Hand:** When would it be necessary to work in Query Explorer?

A: when creating child queries, joins, and exceptions. It may also be more efficient to work in Query Explorer, for example you can create filters with fewer clicks.

## Add Calculated Data Items to Queries

- If the package you are using does not contain the data you require, you can create a calculated data item that will retrieve the required data.

### Process to Add a Calculated Data Item to a Query



When you add a calculated data item using Query Explorer, the item is added directly to the query and you can then choose whether you want to add it to the report layout.

If you are working with many calculated data items, giving the items meaningful names helps you keep track of which data items contain which data.

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It is useful to give a meaningful name the calculated data item because if the data item appears in the report layout, its name is used as the title (for example, the column or row title) where the data item appears.

## Demo 1: Build a Query and Connect it to a Report


### Purpose:

Management wants to compare revenue generated by each product line. They also want to examine information about how much revenue each product line will generate if revenue increases by 7%. You will create a query containing this data and then add data from the query to the report layout.

Server: localhost  
User/Password: brettonf/Education1!  
Studio: Report Studio  
Package: Go Data Warehouse (query)  
Report Type: Blank  
Folder: Sales and Marketing (query)  
Namespace: Sales (query)

### Task 1. Create a query.

Since you created a blank report, Report Studio has not created a query for this report. You will begin by adding a query to this report and will then add data to the query.

1. Point to **Query Explorer** , click **Queries**, and then drag a **Query** object to the work area.
2. In the work area, double-click **Query1**.



3. In the **Insertable Objects** pane, expand **Products**.
4. Ctrl+click **Product line** and **Product type**, and then drag them to the **Data Items** pane.
5. Expand **Sales fact**, and then drag **Revenue** to the **Data Items** pane.

To display projected revenue generated if revenue increases by 7%, you will add a calculated data item to the query that retrieves Revenue multiplied by 1.07.

6. In the **Insertable Objects** pane, click the **Toolbox** tab, and then drag a **Data Item** object to the **Data Items** pane.

Since you want to use the Revenue data item that is already in the query, you will add Revenue to the expression from the Data Items tab.

7. In the **Data Item Expression** dialog box, click the **Data Items** tab, and then drag **Revenue** to the **Expression Definition** pane.
8. At the end of the expression, type **\* 1.07**.
9. Validate the expression, and then after the expression is validated without any errors, click **OK**.

You will name this data item Projected Revenue.

10. In the **Properties** pane, in the **Name** cell, highlight the existing name, type **Projected Revenue**, and then press **Enter**.

You have added the required data items to the query. Before linking this query to the report layout, you want to view the data this query will retrieve.

11. In the **Run** menu, click **View Tabular Data** .

You can view the data that the items in the query retrieve.

A section of the results appear as follows:

Product line	Product type	Revenue	Projected Revenue
Personal Accessories	Binoculars	130,834,653.2	139,993,078.92
Mountaineering Equipment	Climbing Accessories	81,096,582.48	86,773,343.253
Camping Equipment	Cooking Gear	272,835,984.18	291,934,503.072
Personal Accessories	Eyewear	867,125,198.48	927,823,962.373
Outdoor Protection	First Aid	12,429,699.12	13,299,778.058
Golf Equipment	Golf Accessories	51,514,343.88	55,120,347.951
Outdoor Protection	Insect Repellents	36,822,842.52	39,400,441.496
Golf Equipment	Irons	254,814,337.99	272,651,341.649
Personal Accessories	Knives	153,420,439.59	164,159,870.361
Camping Equipment	Lanterns	126,925,660.64	135,810,456.884

12. Close **IBM Cognos Viewer**.

## Task 2. Link this query to a list report.

1. Point to **Page Explorer**, and then click **Page1**.
2. In the **Insertable Objects** pane, from the **Toolbox** tab, drag a **List** object to the work area.
3. Point to **Query Explorer** and notice that the report now contains two queries: **Query1** and **Query2**.

When you added the list object to this report, Report Studio automatically created a second query for this object.

4. In the **Insertable Objects** pane, click the **Data Items** tab, and then under **Query1**, drag **Product line** to the list report.

An error message appears explaining that Report Studio cannot insert this data item into the list report because the query context "Query2" is not the same as the data item's query "Query1".



Before you can add items from Query1 to the list report, you must link Query1 to the list object.

5. Click **OK** to close the error message box.
6. Click on the **Container Selector** to select the entire list.

In the Properties pane under Data, notice that Query2 appears in the Query cell, which means the list is linked to Query2. When you link this list to Query1, Report Studio will delete Query2 from the report.

7. In the **Properties** pane, under **Data**, click the **Query** cell, and then in the list, click **Query1**.
8. Point to **Query Explorer** and observe that the report now contains only **Query1**.

### Task 3. Add data to the list report.

1. In the **Insertable Objects** pane, Shift+click the first and last items to select all the items under **Query1**, and then drag them to the list report.
2. Click the **Product line** column, and then on the toolbar, click **Group/Ungroup** .
3. Ctrl+click the **Revenue** and **Projected Revenue** columns, on the toolbar, click **Summarize** , and then click **Total**.

- On the toolbar, click **Run Report**.

A section of the results appear as follows:

Product line	Product type	Revenue	Projected Revenue
Camping Equipment	Cooking Gear	272,835,984.18	291,934,503.0726
	Lanterns	126,925,660.64	135,810,456.8848
	Packs	351,880,402.84	376,512,031.0388
	Sleeping Bags	309,172,888.35	330,814,990.5345
	Tents	528,221,728.02	565,197,248.9814
Camping Equipment - Total		1,589,036,664.03	1,700,269,230.5121
Golf Equipment	Golf Accessories	51,514,343.88	55,120,347.9516
	Irons	254,814,337.99	272,651,341.6493
	Putters	106,184,271.37	113,617,170.3659
	Woods	313,898,414.65	335,871,303.6755
Golf Equipment - Total		726,411,367.89	777,260,163.6423

Report Studio retrieves the data you specified in the query model for Query1 and displays it in the list report.

- Close **IBM Cognos Viewer**, and then close Report Studio.

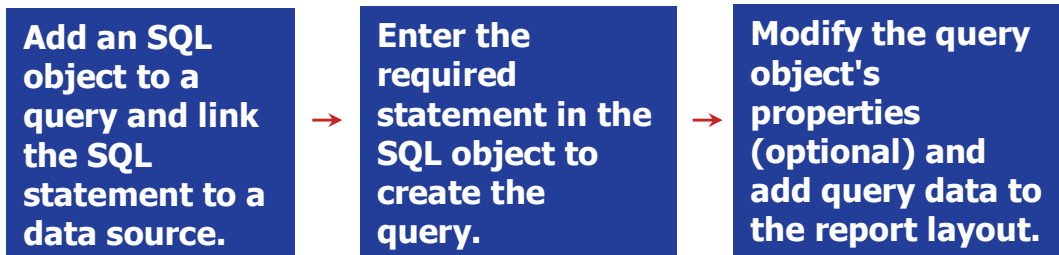
### Results:

**You built a query containing Product line, Product type, and Revenue items. You added a calculated data item to determine values for a 7% increase in revenue and then linked this query to a list report. You grouped the data in the list report, added aggregate data, and then ran the report.**

## Create Custom Queries Using SQL

- You can create a SQL query statement that retrieves the data you require.
- You must specify the data source from which the query will retrieve data.

### Process to Create a Custom Query Using SQL or MDX



To edit the SQL code used to create a query, first convert the query to SQL, and then edit the query statement.

You can only add new data items to the query by editing the SQL statement to retrieve the item.

If you convert a query to SQL and then modify the query statement, you cannot convert the modified statement back to a Report Studio query object.

**INTERACTION - Toolbar Emoticons > Raise Hand:** Ask how many participants know SQL. Reinforce that when you modify a query statement, you are querying the data base directly and not using the package.

## Demo 2: Create a Report Using an SQL Statement



### Purpose:


You have been asked to create a report that shows the production cost of each product. The report should also display the average production costs for all products in each product type. The database administrator has given you the SQL statement needed to retrieve this information from the great outdoors warehouse database. You will use this SQL to retrieve the necessary data.

As a report author, you do not have the capabilities to create this report. The administrator must grant capabilities to execute the specification and execute user defined SQL.

Server: localhost  
User/Password: admin/Education1!  
Component: IBM Cognos Administration

### Task 1. As the Administrator, grant capabilities to the Authors role.

1. Log off, and then log in as the administrator: **admin/Education1!**
2. Under **Administration** click on **Administer IBM Cognos content**.
3. In **IBM Cognos Administration**, click the **Security** tab, and then click on **Capabilities** on the left.
4. From the upper right-hand corner, click **Next** , to go to the next page of capability entries.
5. Click **Report Studio**, beside **User Defined SQL**, click **Actions** , and then click **Set properties**.

6. Click the **Permissions** tab, and then ensure **Authors** is in the list on the left.  
If **Authors** is not in the list, complete steps 7-12. Otherwise, click **Cancel** and proceed to Task 2.
7. Click **Add**, click **Cognos**, and then select **Authors**.
8. Click **Add**,  and then click **OK**.
9. On the left, select **Authors** check box, and then on right, select the **Grant** check boxes for **Execute** and **Traverse**.
10. Click **OK**, and then click the **Capability** link to return to the top level list of capabilities.
11. Navigate back to Capabilities, then advance to the next page, and then beside **Specification Execution**.
12. Click **Actions**, then click **Set properties**, and then grant **Authors** the permission to **Execute** and **Traverse** the **Specification Execution** capability.

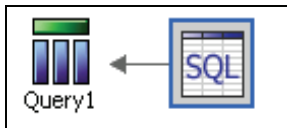
## **Task 2. Create a list report, add a SQL object, and specify a data source.**

1. Click **Log off**, click **Log on again**, and then type **brettonf/Education1!**.
2. Click **Author advanced reports**, and then click **GO Data Warehouse (query)**.
3. Click **Create new**, click **List**, and then click **OK**.
4. Point to **Query Explorer**, and then click **Queries**.

Since you have been given the SQL needed to retrieve the data for this report, you will add an SQL object to Query1 and then paste the SQL statement from the database administrator into the SQL object.

- From the **Insertable Objects** pane, drag an **SQL** object to the right of **Query1**.

The result appears as shown below:



The database administrator told you that the SQL code you have been given is native to the data source from which you will be retrieving data, so you will leave the SQL Syntax property for the SQL object set to Native.

You need to specify that you will be retrieving data from the Great Outdoors Warehouse database.

- With the SQL object you just added selected, in the **Properties** pane, double-click the **Data Source** cell.
- In the **Data Source** dialog box, click **great\_outdoors\_warehouse**, and then click **OK**.

### **Task 3. Add a SQL statement to retrieve data for the query and then modify the SQL statement and view the data retrieved.**

You will copy the SQL statement provided by the database administrator to the clipboard.

- Right-click the **Start** menu and then click **Explore**.
- Navigate to **C:\Edcognos\B5159\01-Create\_Query\_Models**.
- Right-click **Demo 2-Create\_Query\_Models-SQL.txt**, point to **Open With**, and then click **Notepad**.

The file opens containing the SQL statement provided by the database administrator.

---

After this demo, you may want to demonstrate that adding an SQL Object breaks the link to the package. To do this, build a report from a package in RS and look at the query object as there will be no SQL object. Also note that package contents are available in the Insertable Objects. From Query properties, open the Generated SQL, click Convert button and add one space at the end of the statement. Although the SQL has not changed, the addition of the space breaks the connection to the package. This means that the report cannot be upgraded either.

As soon as you add a SQL statement to a report, the report is using custom SQL and can no longer be supported by IBM Cognos Customer Support.



4. From the **Edit** menu, click **Select All**, and then from the **Edit** menu, click **Copy**.
5. Close **Notepad**, and then close **Windows Explorer**.
6. In **Report Studio**, in the work area, double-click the **SQL** object.
7. In the **SQL** dialog box, right-click, and then click **Paste**.

Examine the SQL and notice that this code specifies that the query retrieves four data items aliased as "Year1", "Product\_type", "Product\_name", and "Forecast\_unit\_cost" from the data source.

You want to modify the way this statement names the data items to make the end report easier to read.

8. In the statement, make the following changes:
  - In the first line, change **Year1** to **Year**
  - In the second line, change **Product\_type** to **Product Type**
  - In the second line, change **Product\_name** to **Product Name**
  - In the third line, change **Forecast\_unit\_cost** to **Average Forecasted Cost**

These changes specify that the four data items in the query be named Year, Product Type, Product Name, and Average Forecasted Cost.

9. In the **SQL** dialog box, click **Validate**, and then when **Report Studio** has validated the data, click **OK** to close the dialog box.
10. In the work area, double-click **Query1**.

The four data items retrieved by the data source appear in the Data Items pane for Query1. The data items are named as you specified in the SQL statement.

You will now add data from Query1 to the list report.

## Task 4. Add data to the report.

1. Point to **Page Explorer**, and then click **Page1**.
2. Click on the list's Container Selector to select the entire list.

Notice that this list object is linked to Query1, which means you can add data from Query1 to this report.

3. In the **Insertable Objects** pane, on the **Source** tab, expand the **Sales and marketing (query)** folder, expand **Product forecast (query)** namespace, expand **Products** query subject, and then drag **Product line** query item to the list report.

A warning message appears. Because the query was sourced from SQL and not from the associated package, you cannot add query items from the Insertable Objects pane.

4. Click **OK** to close the error dialog box, and then in the **Insertable Objects** pane, click the **Data Items** tab.

Query1 and the data items you added to the query using the SQL statement appear in the pane.


5. Under **Query1**, Shift+click the first and last items to select all the items, and then drag the items to the list report.
6. In the list report, click the **Year** column and then click **Section**.
7. With **Year** still selected, from the properties window, double-click **Data Format**, then click **Number** from the list, then change **Use Thousands Separator** to **No**, and then click **OK**.
8. Click **Product Type**, and then click **Group/Ungroup**.

## Task 5. Modify data item aggregation properties and then run the report.

You want to include data about the average production cost for all products in each product type and the average production cost for all product types.

1. In the list report, click the **Average Forecasted Cost** column, on the toolbar, click **Summarize**, and then click **Average**.

Notice that only one aggregate row appears at the bottom of the report. You also want the report to include aggregate rows for each product type. To accomplish this, you will need to change the Aggregate Function property for the Product name data item.

2. On the toolbar, click **Undo** .
3. Point to **Query Explorer**, click **Query1**, and then in the **Data Items** pane, click **Product Name**.

In the Properties pane, notice that the Aggregate Function for this property is set to Automatic. To achieve the results you want in this report, you will set this property to None.

4. In the **Properties** pane, click the **Aggregate Function** cell, and then in the list, click **None**.
5. Point to **Page Explorer**, and then click **Page1**.
6. In the list report, click the **Average Forecasted Cost** column, on the toolbar click **Summarize**, and then click **Average**.

Aggregate rows appear for each product type and an aggregate row appears at the bottom of the report for all the product types.

7. From the tool bar click **Run Report**.

A section of the results appear as follows:

2004		
Product Type	Product Name	Average Forecasted Cost
Binoculars	Opera Vision	51.08
	Ranger Vision	83.09
	Seeker 35	79.72
	Seeker 50	103.37
	Seeker Extreme	81.91
	Seeker Mini	45.46
Binoculars - Average		74.105
Cooking Gear	TrailChef Canteen	6.17
	TrailChef Cook Set	34.99
	TrailChef Cup	0.95
	TrailChef Deluxe Cook Set	80.77
	TrailChef Double Flame	77.6
	TrailChef Kettle	5.51
	TrailChef Kitchen Kit	14.01
	TrailChef Single Flame	45.16
	TrailChef Utensils	9.41
	TrailChef Water Bag	2.77
Cooking Gear - Average		27.734

The data items you added using SQL appear, and the grouping and aggregation you specified in the report layout is applied.

8. Close **IBM Cognos Viewer**.

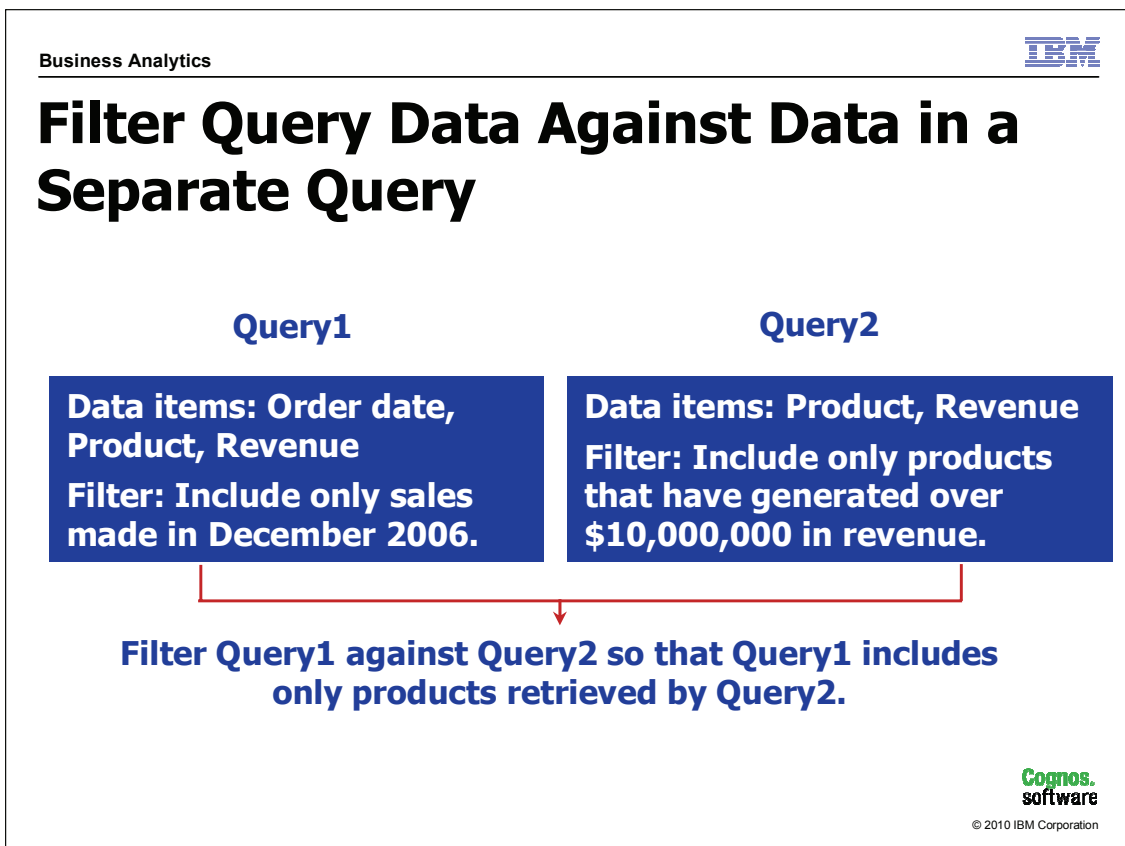
Leave Report Studio open for the next demo.

**Results:**

**You used an SQL statement to create a report that displayed the production cost of each product. You modified the SQL statement to change the way data items were named and then added query data to the report layout. You sectioned, grouped, and formatted the data using the report layout and added aggregate data to the report to display the average production costs of all products in each product type and the average production cost of all product types.**

**INTERACTION - Toolbar Emoticons > Raise Hand:** Ask participants how we can add query items from the package to this report.

A: By adding another Query Object (List, Crosstab, etc.)



When you filter Query1 against data in a second query, each query retrieves a separate set of data.

According to the filter you create, Query1 will only retrieve data retrieved by the second query.

## Demo 3: Answer a Business Question by Referencing Data in a Separate Query

### Purpose:

For any given month, management wants to know which products were ordered that have lifetime revenues exceeding a specified amount. You will create a report that lets them answer this question. For example, management could use the report to view data for products ordered during December 2006 that have generated lifetime revenue of at least \$150 million. To create this report, you will create one query containing prompts for the order month and year and will create a second query containing a prompt for lifetime revenue. You will then filter Query1 against the data retrieved by Query2.

Server: localhost  
 User/Password: brettonf/Education1!  
 Studio: Report Studio  
 Package: Go Data Warehouse (query)  
 Report Type: List  
 Folder: Sales and Marketing (query)  
 Namespace: Sales (query)

### Task 1. Create a list report containing data about orders and add prompts.

1. Add the following query items to the list:

- Sales order → Order number
- Time → Year, Month (numeric)
- Products → Product
- Sales fact → Revenue, Quantity

You will create a prompt to let users select a year for which to view data.

2. On the toolbar, click **Filters**, **Edit Filters**, ensure the **Detail Filters** tab is selected, and then click **Add**.
3. Select **Advanced**, click **OK**, and then click the **Data Items** tab.
4. From the **Available Components** pane, drag **Year** to the **Expression Definition** pane, and then at the end of the expression, type **=?Year?**.
5. Validate the expression.
6. For the resulting **Year** prompt, type **2006**, and then click **OK**.
7. Create another **Detail Filter** using the following expression: **Month (numeric) =?Month?**
8. Validate the expression.
9. For the resulting **Month** prompt, type **12**, and then click **OK**.
10. Click **OK** twice to close both dialog boxes.

## **Task 2. Format and then test the report.**

1. In the list report, Ctrl+click the **Order number**, **Year** and **Month (numeric)** columns, and then click **Group / Ungroup**.
2. In the list report, Ctrl+click the **Revenue** and **Quantity** columns, on the toolbar, click **Summarize**, and then click **Total**.

You will test this prompt by viewing data for December 2006.



- Run the report, ensure that the number in the **Month (numeric)** box is **12**, and the number in the **Year** box is **2006**, and then click **OK**.

A section of the results appear as follows:

Order number	Year	Month (numeric)	Product	Revenue	Quantity
104579	2006	12	Canyon Mule Weekender Backpack	80,393.6	296
			Firefly 4	7,507.2	255
			Flicker Lantern	7,737.75	225
			Mountain Man Analog	5,891.7	123
			Polar Ice	2,090	19
			Polar Sports	6,296.93	52
			Polar Sun	1,174.96	19
			Star Gazer 2	142,198.1	257
		12 - Total		253,290.24	1,246
		2006 - Total		253,290.24	1,246
104579 - Total			253,290.24	1,246	

- In the report, click **Bottom**, and then scroll to the end of the report.  
You can see that the total revenue generated by orders made in December 2006 was \$130,525,197.76 and total quantity of products sold was 2,241,709.
- Close **IBM Cognos Viewer**.

### **Task 3. Add a third filter to prompt for a minimum lifetime revenue amount.**

You want this report to display only data for orders that have life-to-date revenues of at least a specified amount, selected using a prompt at run time. You will add a filter to the report to achieve this result.

- On the toolbar, click **Filters**, **Edit Filters**, and then click **Add**.

2. Select **Advanced**, click **OK**, and then click the **Data Items** tab.
3. On the **Data Items** tab, drag **Revenue** to the **Expression Definition** pane, and then at the end of the expression, type **>=?Minimum revenue?**.
4. Validate the expression.
5. For the resulting **Minimum revenue** prompt, type **150000000** (150 million), and then click **OK** twice to close each dialog box.
6. In the **Filters** dialog box, with the filter you just added still selected, in the **Application** section, click **After auto aggregation**, and then click **OK**.

You will test this prompt by viewing data for products sold in December 2006 that generated lifetime revenue of at least 150 million dollars.

7. Run the report, ensure that **150000000** (150 million) is in the **Minimum revenue** box, **12** is in the **Month (numeric)** box, and **2006** is in the **Year** box.
8. Click **OK**.


The report contains no data since all filters combined eliminated all data from the query.

To retrieve the data you require, you will remove the third filter from Query1 and will create a second query containing this filter. You will then create a query reference from the first query.

You will first give Query1 a more meaningful name.

9. Close **IBM Cognos Viewer**, then point to **Query Explorer**, and then click **Query1**.
10. In the **Properties** pane, in the **Name** box, type **Selected month** and then press **Enter**.
11. In the **Detail Filters** pane, click the **[Revenue]>=?Minimum revenue?** Filter, and then on the toolbar, click **Delete**.

#### **Task 4. Add a second query containing a filter to prompt for a minimum lifetime revenue amount.**

1. On the toolbar, click **Up**  to navigate to a view of all queries in the report.
2. From the **Insertable Objects** pane, drag a **Query** object below the **Selected month** query in the work area, and then in the work area, double-click **Query1**.
3. In the **Properties** pane, in the **Name** box, type **Minimum revenue**, and then press **Enter**.
4. From the **Insertable Objects** pane, on the **Source** tab, under the **Products** query subject, double-click **Product**, and under the **Sales fact** query subject, double-click **Revenue**, to add them to the **Data Items** pane.

You will add a filter to this report to prompt users to select a minimum lifetime revenue for all products retrieved by the query.


5. From the **Data Items** pane, drag **Revenue** to the **Detail Filters** pane, and then at the end of the **Expression Definition**, type **>=?Minimum revenue?**.

6. Validate the expression, and then click **OK**.

You want to apply this filter to all revenue generated by a product rather than the revenue generated by individual orders.

7. With the filter you just created still selected, in the **Properties** pane, click the **Application** cell, and then from the list, click **After Auto Aggregation**.

You will preview these results to see which products have a life-to-date revenue of at least 150 million.

8. From the **Run** menu, click **View Tabular Data** , ensure **150000000** (150 million) is in the **Minimum revenue** box, and then click **OK**.

The results appear as follows:

Product	Revenue
Star Lite	168,191,550.48
Zone	157,369,344.95

You can see that two products (Star Lite and Zone) generated lifetime revenue of at least one hundred and fifty million dollars.

9. Close **IBM Cognos Viewer**.

**INTERACTION - Toolbar Emoticons > Raise Hand:** Task 4, Step 6, Ask participants why, when validated, you were not prompted for a minimum revenue value?


## Task 5. Filter Query1 by referencing data in Query2.

You will specify that only products that meet the conditions of the Minimum revenue filter should be included in the Year to date query.

1. Point to **Query Explorer**, and then click **Selected month**.

You will filter the Product name data item in the Selected month query against the Product name data items retrieved by the Minimum revenue query.

2. From the **Data Items** pane, drag **Product** to the **Detail Filters** pane.

3. At the end of the expression, type **IN (**, and then in the **Available Components** pane, click the **Queries** tab .

4. From the **Available Components** pane, under **Minimum revenue**, drag **Product** to the end of the expression.

5. At the end of the expression, type **)**

The final expression appears as shown below:

**[Product]IN ([Minimum revenue].[Product])**

6. Validate the expression.

7. From the tool bar click **Run Report**.
8. Ensure that **12** is in the **Month (numeric)** box, **2006** is in the **Year** box, and **150000000** (150 million) is in the **Minimum revenue** box.
9. Click **OK**.

A section of the results appear as follows:

Order number	Year	Month (numeric)	Product	Revenue	Quantity
104614	2006	12	Star Lite	210,972	600
		12 - Total		210,972	600
		2006 - Total		210,972	600
104614 - Total				210,972	600
104628	2006	12	Star Lite	214,488.2	610
		12 - Total		214,488.2	610
		2006 - Total		214,488.2	610
104628 - Total				214,488.2	610

The report contains data for the orders in December 2006 of the two products that have lifetime revenue of at least 150 million dollars (Star Lite and Zone).

10. Close **IBM Cognos Viewer**.

## Task 6. Format the report.

You do not need to include the Year and Month columns in the list report.

1. Point to **Page Explorer**, and then click **Page1**.
2. Ctrl+click the **Year** and **Month (numeric)** columns, and then on the toolbar, click **Cut**.
3. In the list report, delete the **Month (numeric)** and **Year** aggregate rows.

- Run the report, with **150000000** in the **Minimum revenue** box, **12** in the **Month (numeric)** box, and **2006** in the **Order year** box, and then click **Bottom**.

A section of the results appear as follows:

834905	Zone	755.55	23
834905 - Total		755.55	23
834922	Zone	1,790.1	54
834922 - Total		1,790.1	54
Overall - Total		9,451,826.18	165,443

You can see that in December 2006, 165,443 of these two products were sold and they generated \$9,451,826.18 in revenue.

- Close **IBM Cognos Viewer**.

Leave Report Studio open for the workshop.

### Results:

**By filtering one query against another, you created a report that lets users choose to view order data for a specified month for products whose lifetime revenue exceeds a specified amount.**

Database administrators may be concerned with the performance of standard reports and may provide report authors with the SQL statements to use to create reports if they are concerned about the size or complexity of reports. In the Insertable Objects pane, you will not be able to take advantage of any relationships or other modeling data modelers have set up before publishing the package.

**INTERACTION - Whiteboard:** Ask participants what are some advantages for using custom query statements and what are some disadvantages. (List these on the whiteboard)

## Summary

- At the end of this course, you should be able to:
  - build query models and then connect them to the report layout
  - edit an SQL statement to author custom queries
  - add filters and prompts to a report using the query model

**IINTERACTION - Check Sticker:** Check each objective as it is summarized.



## Workshop 1: Filter Data Using the Query Model

You need to create a report that displays revenue data for 2005 for orders by retailer. The report must have the ability to show the retailers that generated revenues less than \$100000 for orders that generated revenues more than \$10000.

To accomplish this:

- Open Workshop 1 Start file.
- Add a detail filter for individual orders that generated more than \$10,000 in Revenue.
- Add a summary filter to include retailers who generated less than \$100,000 in total revenue.
- Add a prompt to let users view data from a particular year.

For more detailed information outlined as tasks, see the Task Table section.

For the final results, see the Workshop Results section that follows the Task Table section.

## Workshop 1: Task Table

Task 1: Open Start file and add filters to the query.	
Where to Work	Hints
File menu	<ul style="list-style-type: none"> <li>Public Folders\B5159\01-Create Query Models\Workshop 1 Start</li> </ul>
Query Explorer	<ul style="list-style-type: none"> <li>Detail filter: [Revenue] &gt;10,000</li> </ul>
	<ul style="list-style-type: none"> <li>Summary filter: [Total(Revenue)] &lt; 100,000; Scope: Retailer name</li> </ul>
Task 2: Add a prompt that references a data item.	
Where to Work	Hints
Detail Filters pane	<ul style="list-style-type: none"> <li>[Year] =?Year?</li> </ul>

If you need more information to complete a task, see the Step-by-Step instructions at the end of the Workshop.

## Workshop 1: Results

After completing Task 2, Step 6, a section of the results appear as follows:

Retailer	Product	Revenue
Alles für Draußen	Hibernator Lite	24,641.88
	Star Dome	26,309.12
	TrailChef Kettle	10,679.06
Alles für Draußen - Total		61,630.06
Baxters Pro Shop	BugShield Extreme	37,065.14
	Glacier GPS	21,836.27
	Seeker 50	14,244.78
Baxters Pro Shop - Total		73,146.19
Boot Camp Equipment	Capri	48,989.6
	Trail Master	34,750
Boot Camp Equipment - Total		83,739.6
Gyutan Golf Shop	BugShield Extreme	37,848.16
	Glacier Basic	16,980.9
	Sun Shelter 30	10,944
Gyutan Golf Shop - Total		65,773.06
Hakata Tozanyouhin Senmonten	TrailChef Double Flame	16,548.56
Hakata Tozanyouhin Senmonten - Total		16,548.56

## Workshop 1: Step-by-Step Instructions

Server: localhost  
User/Password: brettanf/Education1!  
Studio: Report Studio  
Package: Go Data Warehouse (query)  
Report Type: List  
Folder: Sales and Marketing (query)  
Namespace: Sales (query)

### Task 1. Open Start File and Add Filters to the Query.

1. In Report Studio, click File, Open, and navigate to **Public Folders\B5159\01-Create Query Models\Workshop 1 Start**, and then click **Open**.
2. Point to **Query Explorer**, and then click **Query1**.
3. From the **Data Items** pane, drag **Revenue** to the **Detail Filters** pane, and then in the **Expression Definition** pane, at the end of the expression, type **>10000** (10,000).
4. Click **Validate**, and then after the expression is validated without any errors, click **OK**.
5. From the **Data Items** pane, drag **Total (Revenue)** to the **Summary Filters** pane, and then at the end of the expression, type **<100000** (100,000).
6. Click **Validate**, and then after the expression is validated without any errors, click **OK**.
7. With the summary filter you just created selected, in the **Properties** pane, double-click the **Scope** cell, and then select the **Retailer** check box.
8. Click **OK**, and then on the toolbar click **Run Report**.
9. Close **IBM Cognos Viewer**.

## Task 2. Add a prompt that references a data item.

1. From the **Insertable Objects** pane, under **Time**, drag **Year** to the **Detail Filters** pane.
2. In the **Expression Definition** pane, at the end of the expression, type **=?Year?**.
3. Validate the detail filter expression, in the **Prompt** box, type **2005**, and then click **OK**.
4. Click **OK**.

You will test this prompt by viewing data for 2005.

5. From the tool bar click **Run Report**.
6. In the **Year** prompt box, type **2005**, and then click **OK**.

Notice that the report contains different retailers than when you ran it for all years. This is because in 2005, different retailers meet the filter conditions you specified for this report.

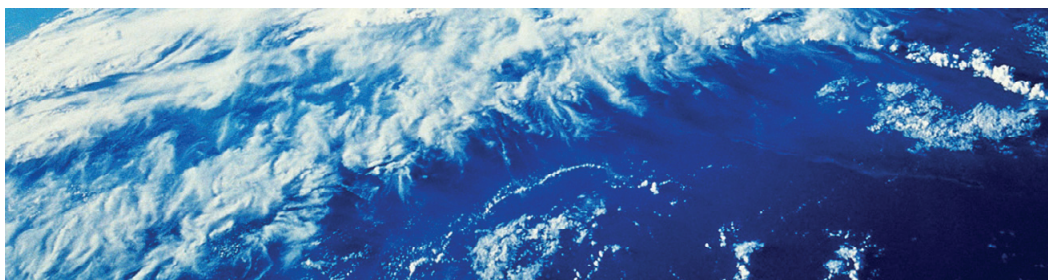
7. Close **IBM Cognos Viewer**, close **Report Studio**, and then close **Internet Explorer**.





# Create Reports Based on Query Relationships

IBM Cognos BI



**Business Analytics**

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## Objectives

- At the end of this course, you should be able to:
  - create reports by merging query results
  - create reports by joining queries
  - combine data containers based on relationships from different queries

---

If you intend to teach this module, students should be familiar with:

- Creating lists in Report Studio
- Creating filters in Report Studio
- The IBM Cognos Query Model

Suggested modules to reference

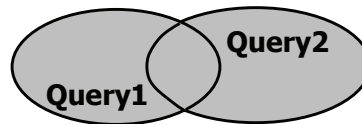
- Introduction to the Reporting Application
- Create List Reports
- Focus Reports Using Filters
- Create Query Models

**INTERACTION - Star Sticker:** Star each Objective as you introduce it.

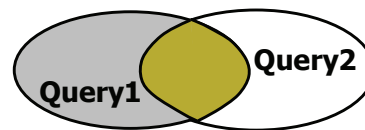
## Merge Query Results Using Set Operation Objects

- To retrieve only the data from separate queries that meets a specific relationship requirement, use set operations.

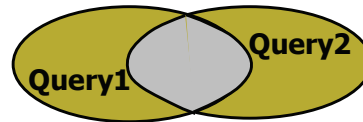
### Union Operator



### Except Operator



### Intersect Operator

Cognos.  
software

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A Union operator combines two or more queries into one result set and includes all data retrieved by the combined queries.

An Except operator combines two or more queries into one result set and includes only data for one query that is not also retrieved by the other queries in the set.

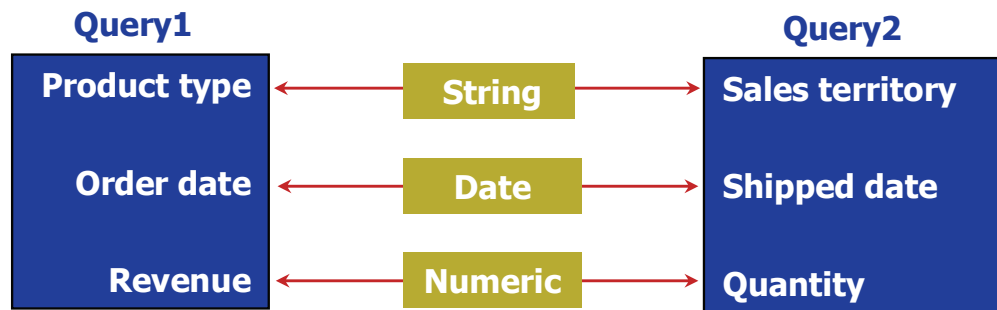
An Intersect operator combines two or more queries into one result set and includes only data that is common to the combined queries.

A JOIN is not a set operator because it does not create a projection list. When you use a JOIN, two full query sets are linked together through a common data item

**INTERACTION - Whiteboard:** Ask participants for some examples of where they might use this in their reports. List ideas on the whiteboard.

## Merge Query Results Using Set Operation Objects (cont'd)

- Combined queries must contain the same number of data items, the data items must be compatible, and must appear in the same order:



**Two Queries that Could be Combined Using Set Operations**

Using set operations to merge data from multiple queries may produce intermixed rows. For example, you may have one query that extracts order method data and another that extracts sales rep data. The sales rep names and order methods will likely not be sorted into distinct groups of rows.

You can choose to keep the data from the two queries distinct. (For example, so that all sales rep names appear first and then all order methods appear below.)

To do this, add a sort key data item to each of the queries combined by the set operator, and then add this sort key as a data item in the merged query.

### **INTERACTION - Whiteboard:** Reiterate the 3 conditions for Set Operations

1. Must contain the same amount of queries.
2. Must have the same type of queries. (Date, Data, Numeric, etc.)
3. Must be in the same order

## Demo 1: Answer a Business Question by Creating a Union between Two Queries

### Purpose:

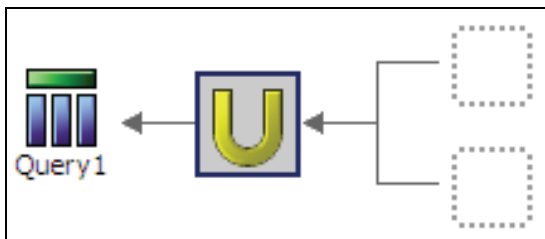
Management wants to know which order methods generated at least \$20 million in revenue in 2006. They also want to know which sales reps generated at least \$18 million in revenue during the same time period. To answer these questions, you will create two queries and then merge them into a single result set using a union set operation. You will then use a sort key to keep the data from the two queries distinct.

Server: localhost  
User/Password: brettanf/Education1!  
Studio: Report Studio  
Package: Go Data Warehouse (query)  
Report Type: List  
Folder: Sales and Marketing (query)  
Namespace: Sales (query)

### Task 1. Add a union object and queries to the list report.

1. Point to **Query Explorer**, click **Queries**, and then, from the **Insertable Objects** pane, drag a **Union** object to the work area to the right of **Query1**.

Two drop zones appear to the right of the Union object, as shown below:



2. From the **Insertable Objects** pane, drag a **Query** object to each of the drop zones to the right of the **Union** object.

Query2 and Query3 appear in the work area, and shortcuts to each query appear in the drop zones to the right of the Union object.

You will add data items to these queries and will then combine the results in Query1.

## **Task 2. Add data and filters to Query2.**

You will add order method data to Query2 and filter on those order methods that generated at least \$20 million in revenue in 2006.

1. In the work area, double-click **Query2**.
2. In the **Properties** pane, in the **Name** box, type **Order methods** and then press **Enter**.
3. In the **Insertable Objects** pane, drag the following query items to the **Data Items** pane:
  - **Order method** → **Order method type**
  - **Sales fact** → **Revenue**
4. From the **Data Items** pane, drag **Revenue** to the **Detail Filters** pane, and then create the detail filter expression as follows:  
**[Revenue]>=20000000** (20 million)
5. Validate the detail filter expression, and then click **OK**.

---

Note that in Task 2, Step 1, you can double-click on either item labeled **Query2**

6. In the **Properties** pane, click the **Application** cell, and then in the list, click **After Auto Aggregation**.

By selecting After Auto Aggregation, the filter will apply to total revenue rather than revenue per order.

You will add a second filter to specify that you only want to include data for 2006.

7. From the **Time** query subject, drag **Year** to the **Detail Filters** pane and create the detail filter expression as follows:

**[Sales (query)].[Time]. [Year]=2006**

8. Validate the detail filter expression, and then click **OK** to close the dialog box.

You will view the tabular data to identify the order methods this query retrieves from the data source.

9. From the **Run** menu, click **View Tabular Data**.

You can see that four order methods (E-mail, Sales visit, Telephone, and Web) generated at least \$20 million in revenue in 2006.

10. Close **IBM Cognos Viewer**.

### **Task 3. Add data and filters to Query3.**

You will add data items to Query3 filter on sales reps who sold at least \$18 million through orders in 2006.

1. Point to **Query Explorer**, and then click **Query3**.
2. In the **Properties** pane, in the **Name** box, type **Sales reps** and then press **Enter**.

**INTERACTION - Toolbar Emoticons > Raise Hand:** Ask why, in task 2 Step 6, that applying this filter **After Auto Aggregation** is important?

3. In the **Insertable Objects** pane, drag the following query items to the **Data Items** pane:

- **Employee by region** → **Employee name**
- **Sales fact** → **Revenue**

You will add a filter so this query will only retrieve data for sales reps that generated revenue of at least \$18 million dollars in total.

4. From the **Data Items** pane, drag **Revenue** to the **Detail Filters** pane, and then create the detail filter expression as follows:

**[Revenue]>=18000000 (18 million)**

5. Validate the detail filter expression, and then click **OK**.
6. With the filter you just added still selected, in the **Properties** pane, click the **Application** cell, and then in the list, click **After Auto Aggregation**.

You will add a second filter to specify that you only want to include data for 2006.

7. From the **Time**, drag **Year** to the **Detail Filters** pane, and then create the detail filter expression as follows:

**[Sales (query)].[Time Dimension].[Year]=2006**

8. Validate the detail filter expression, and then click **OK**.

You will view the tabular data to identify the sales reps this query retrieves.

9. From the menu, click **Run**, and then click **View Tabular Data**.

You can see that ten sales reps generated at least \$18 million in revenue in 2006.

10. Close **IBM Cognos Viewer**.

## Task 4. Combine the data items from the two queries in Query1, and add data to the list.

You want the title of the column containing order methods and sales reps to describe the column's contents. To achieve this, you will modify the projection list for the Union object.

1. On the toolbar, click **Up**, in the work area, click the **Union** object, and then in the **Properties** pane, double-click the **Projection List** cell.
2. In the **Projection List** dialog box, click **Manual**, and then in the list, double-click **Order method type**.
3. In the **Edit** box, highlight the existing text, type **Sales rep/Order method** and then click **OK** twice to close both dialog boxes.

You will now add data to Query1.

4. In the work area, double-click **Query1**.
5. In the **Properties** pane, in the **Name** box, type **Sales reps/Order methods** and then press **Enter**.
6. In the **Insertable Objects** pane, drag the **Sales rep/Order method** and **Revenue** items to the **Data Items** pane.

You will now add data from the Sales reps/Order methods query to the list report.

7. Point to **Page Explorer**, and then click **Page1**.
8. Click on the list **Container Selector** to select the entire list.

Notice that the list report is linked to the Sales reps/Order methods query. You will add items from this query to the list report.

9. Click the **Data Items** tab, Ctrl+click the two items under the **Sales reps/Order methods** query, and then drag them to the list report.



10. From the tool bar click **Run Report**.

The report runs and appears in IBM Cognos Viewer.

The report contains order methods that generated at least \$20 million in revenue in 2006 as well as staff who generated at least \$18 million in revenue during the same year, as shown below:

Sales reps/Order methods	Revenue
Alphonse Sauvage	23,194,925.33
Chang-ho Kim	19,750,237.63
Charles Laurel	20,681,527.49
E-mail	23,701,042.57
Fausta Bruno	21,672,254.62
Fiorenza Giordano	22,414,321.95
Lotta Bichot	18,153,919.5
Nathalie Benoit	23,253,020.06
Roderick Albiñana	21,479,702.23
Roger Bakker	18,395,422.16
Sales visit	73,918,652.38
Telephone	37,199,842.8
Warren Chambers	18,855,642.06
Web	1,339,714,172.77

You will use a sort key to sort this data so all order methods appear together and all sales reps appear together.

11. Close **IBM Cognos Viewer**.

**INTERACTION - Toolbar Emoticons > Raise Hand:** What can we do to this report to make it more presentable?

## **Task 5. Add a Sort key data item to the Order methods and Sales reps queries and then add this data item to the Sales reps/Order methods query.**


You will add a Sort key data item with an expression of 'A' to the Order methods query and will add a Sort key data item with an expression of 'B' to the Sales reps query. You can then use this data item to sort data in the Sales reps/Order method column of the report.

1. Point to **Query Explorer**, click the **Order methods** query, and then in the **Insertable Objects** pane, click the **Toolbox** tab.
2. From the **Insertable Objects** pane, drag a **Data Item** object to the **Data Items** pane, in the **Expression Definition** pane, type 'A', and then click **OK**.
3. In the **Properties** pane, in the **Name** cell for the data item, type **Sort key** and then press **Enter**.
4. Point to **Query Explorer**, and then click **Sales reps**.
5. Repeat steps 1-3 to add a data item named **Sort key** with 'B' as the **Expression Definition** to the **Sales reps** query.
6. On the toolbar, click **Up**, in the work area, click the **Union** object, and then in the **Properties** pane, double-click the **Projection List** cell.

You will add the Sort key data item to the projection list for the Sales reps/Order methods query.

---

Task 5, step 2: If you validate the 'A' expression, you will receive a message saying there are errors in other parts of the report. This is because until you also add a sort key data item to Query3, the two queries feeding into the merged query do not contain the same number of data items.

7. In the **Projection List** dialog box, click **Add**, with **Data Item1** selected, click **Edit** , and then in the **Edit** dialog box, type **Sort key**.
8. Click **OK** twice to close both dialog boxes.
9. In the work area, double-click **Sales reps/Order methods**, and then from the **Insertable Objects** pane, drag the **Sort key** data item to the **Data Items** pane.

## **Task 6. Use the Sort key data item to sort the data in the Staff name/Order method column.**

1. With **Sort key** data item selected, in the **Properties** pane, click the **Pre-Sort** cell, and then in the list, click **Sort descending**.

You need to make the Sort key data item a property of the list report so that the sorting used for this item will be applied to the report layout.

2. Point to **Page Explorer**, and then click **Page1**.
3. Click the list Container Selector to select the entire list.
4. In the **Properties** pane, double-click the **Properties** cell, select the **Sort key** check box, and then click **OK**.

- From the toolbar click **Run Report**.

The result appears as shown below:

Sales reps/Order methods	Revenue
Alphonse Sauvage	23,194,925.33
Chang-ho Kim	19,750,237.63
Charles Laurel	20,681,527.49
Fausta Bruno	21,672,254.62
Fiorenza Giordano	22,414,321.95
Lotta Bichot	18,153,919.5
Nathalie Benoit	23,253,020.06
Roderick Albiñana	21,479,702.23
Roger Bakker	18,395,422.16
Warren Chambers	18,855,642.06
E-mail	23,701,042.57
Sales visit	73,918,652.38
Telephone	37,199,842.8
Web	1,339,714,172.77

The Sales reps that generated more than \$18 million in revenue in 2006 appear at the top of the Sales reps/Order method column, and the order methods that generated more than \$20 million in revenue in the same time period appear at the bottom of the column.

- Close **IBM Cognos Viewer**.

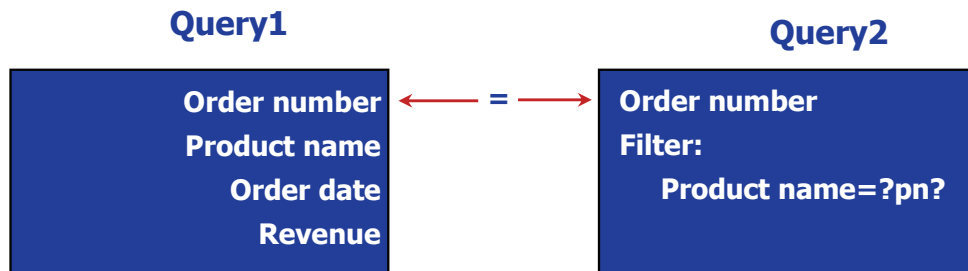
Leave Report Studio open for the next demo.

### Results:

**You created a report that shows the order methods that generated at least \$20 million in revenue in 2006 and sales reps that generated at least \$18 million in revenue during the same time period. To retrieve this information, you created two queries and then merged them into a single result set using a union set operation. You used a sort key to keep the data from the two queries distinct.**

## Create Join Relationships Between Queries

- Create join relationships between queries when you need to create a relationship between data in separate queries to answer a specific business question.



You can create join relationships when working with relational or dimensionally modeled relational data.

If you want to edit the expression used to create a join relationship, you can convert the join relationship to an expression and then make the required changes.

Join objects let you create both inner joins and outer joins between queries.

An outer join retrieves all rows returned by an inner join (matching rows) as well as all the rows from one table that do not match any row from the other table. Outer joins can be left, right, or full joins.

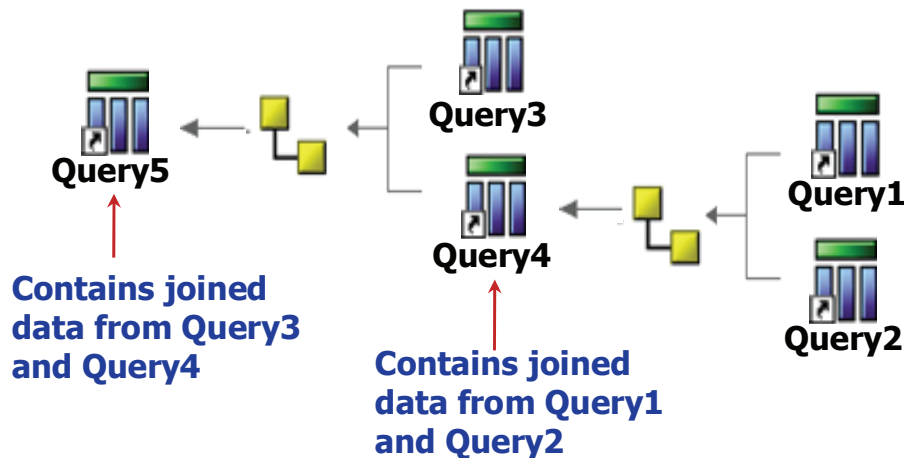
You can create a join relationship if you want to create a list report displaying sales target data for each month, but there is no relationship between the tables in which the Month and Sales Target query items are contained in the model you are using.

After creating the join, you can add both the Month and the Sales target query items to the joined query, and can then link the joined query to a List data container and add the two query items to the list.

**INTERACTION - Toolbar Emoticons > Microphone:** Ask participants when the report author would need to create relationships at the report level.

## Create Join Relationships Between Queries (cont'd)

- To retrieve the data you require, you can join a query or create multiple joined queries.



When working with multiple joined queries, it is useful to view the relationships that exist among queries in the report.

In the workshop of this module, you are asked to create a report that compares the percentage change in quantity sold by different order methods between 2004 and 2005 and between 2005 and 2006. To obtain this data, you will create three queries, each containing the Order method data item and a data item for quantity sold in one order year and will then use join relationships to add this data to a single query.

## Demo 2: Analyze Product Sales by Joining Two Queries

### Purpose:

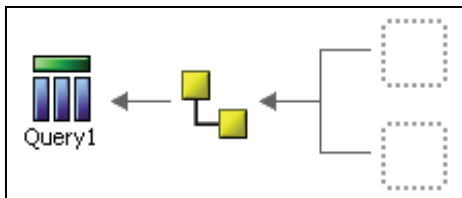
To help the sales department understand purchasing trends, you have been asked to create a report displaying products that were purchased in orders that included a specific product, selected by users at run time. To achieve this result, you will create a join relationship between two queries.

Server: localhost  
 User/Password: brettontf/Education1!  
 Studio: Report Studio  
 Package: Go Data Warehouse (query)  
 Report Type: List  
 Folder: Sales and Marketing (query)  
 Namespace: Sales (query)

### Task 1. Add queries to a list report.

1. Point to **Query Explorer**, and then click **Queries**.
2. From the **Insertable Objects** pane, drag a **Join** object to the right of **Query1**.

Two drop zones appear to the right of the Join object, as shown below:



3. From the **Insertable Objects** pane, drag a **Query** object to each of two drop zones.

Query2 and Query3 display in the work area and shortcuts to each query appear in the drop zones to the right of the Join object. You will add data to each of these queries and then join the results.

## Task 2. Add data to the queries.

1. In the work area, double-click **Query2**.
2. From the **Insertable Objects** pane, **Sales order** query subject, drag **Order number** to the **Data Items** pane.

You want this query to include only orders that contained a specific product selected at run time.

3. From the **Products** query subject, drag **Product** to the **Detail Filters** pane.
4. Create the filter as follows:  
**[Sales (query)].[Products].[Product]= ?Product?**

5. Validate the detail filter expression, and then click **OK**.
6. With the detail filter still selected, change the **Application** property to **After Auto Aggregation**.

You will now add data to Query3.

7. Point to **Query Explorer**, click **Query3**, and then add the following to the **Data Items** pane:
  - **Sales order → Order number**
  - **Time → Date**
  - **Products → Product**
  - **Sales fact → Quantity, Revenue**

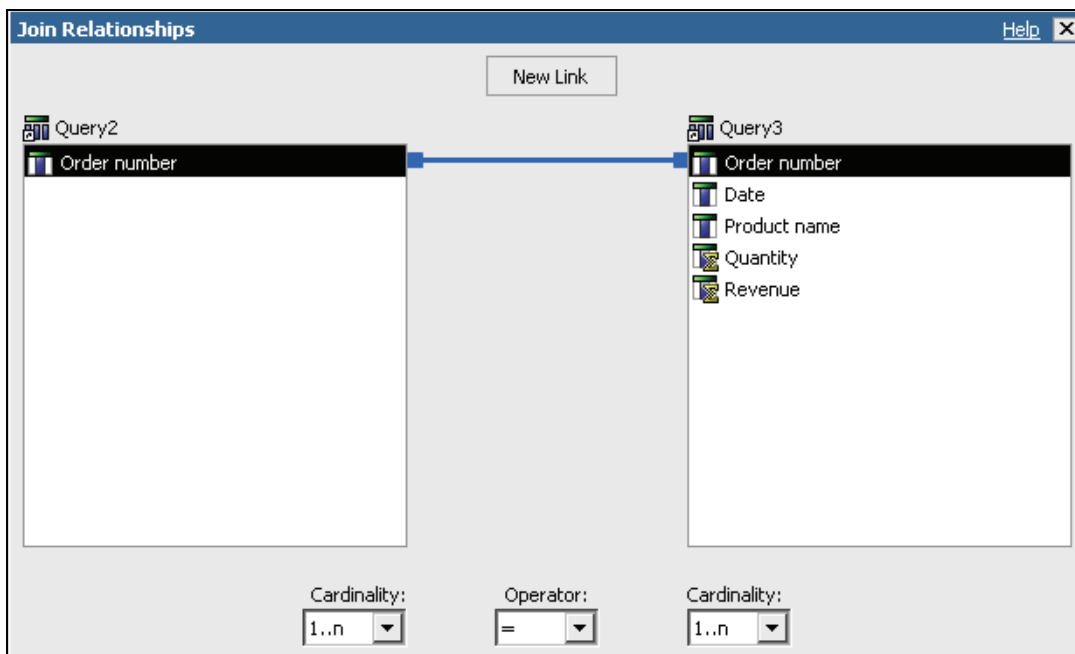


### Task 3. Create a join relationship between the two queries, and then add data items to Query1.

1. On the toolbar, click **Up**.
2. In the work area, double-click the **Join** object.
3. In the **Join Relationships** dialog box, click **New Link**.

You want to specify that the joined query will only contain order numbers that appear in both Query2 and Query3.

4. Ensure that **Order number** is selected in both the **Query2** list and the **Query3** list, and that the **Cardinality** on the left and the right is **1..n**, as shown below:



5. Click **OK**, and then double-click **Query1**.
6. From the **Insertable Objects** pane, click and drag **Query3** to the **Data Items** pane.

**INTERACTION - Toolbar Emoticons > Yes/No:** Does anyone have experience with Framework Manager? The Join relationship window should be familiar.

## Task 4. Add data to the list, and then run the report.

1. Point to **Page Explorer**, and then click **Page1**.
2. Click the **Data Items** tab, Shift+click all of the data items under **Query1**, and then drag them to the list report.
3. In the list report, click the **Order number** column, Ctrl+click the **Date** column, and then on the toolbar, click **Group / Ungroup**.
4. In the list report, click the **Product** column, on the toolbar, click **Sort**, and then click **Ascending**.
5. In the list report, click the **Quantity** column, Ctrl+click the **Revenue** column, on the toolbar, click **Summarize**, and then click **Total**.

---

Task 4 Step 1; clicking and dragging **Query 1** into the list will produce a list inside a list.

**INTERACTION - Toolbar Emoticons > Raise Hand:** Ask the participants what they could do in Task 4, Step 5, if they wanted to add aggregate rows for the grouped Data item as well as the grouped Order number item.

A: They would have to set the Aggregate Function property for the Order date data item to None, so Report Studio would know that this data item does not contain numerical data.

6. Run the report, in the **Product** value box, type **Bear Edge** and then click **OK**.


A section of the result appears as shown below:

Order number	Date	Product	Quantity	Revenue
100183	Feb 9, 2004	Bear Edge	216	8,402.4
		EverGlow Kerosene	220	6,732
		Star Lite	287	98,791.14
		TrailChef Cook Set	540	28,177.2
		TrailChef Single Flame	477	29,621.7
		TrailChef Utensils	415	7,764.65
100183 - Total			2,155	179,489.09
101289	Dec 10, 2004	Bear Edge	338	13,009.62
		Canyon Mule Weekender Backpack	273	72,585.24
		Deluxe Family Relief Kit	617	19,435.5
		Hibernator Camp Cot	363	35,272.71
		Star Dome	154	93,220.82
		Sun Shelter Stick	1,605	7,463.25
		Sun Shield	1,535	8,565.3
		TrailChef Canteen	1,018	11,859.7
		TrailChef Single Flame	737	45,767.7
101289 - Total			6,640	307,179.84
104134	Aug 9, 2006	Bear Edge	378	15,010.38
		Bear Survival Edge	205	17,974.4
		BugShield Natural	700	4,200
		Double Edge	761	12,411.91
		Glacier Basic	900	28,863

7. Click **Page down** and observe that only orders that included the **Bear Edge** product appear in the report.
8. Close **IBM Cognos Viewer** but leave Report Studio open for the next demo.




### Results:


To help our sales department understand purchasing trends, you created a report displaying products that were purchased in orders that included a specific product, selected by users at run time. You created a join relationship between two queries to ensure that the final report only displayed information for products sold in orders that included the product users selected in the prompt.

Business Analytics



## Create a Report Within a Report

- You can create a report that delivers information that would otherwise require two or more reports.


Product line	Revenue	Product line Sales Trends
Camping Equipment	\$4,578,321	
Mountaineering Equipment	\$4,343,692	
Personal Accessories	\$3,178,613	



**Master list**



**Detail chart  
inside a list**



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By using master-detail relationships, you ensure that the detail data container only displays information relevant for the row in which it appears in the master data container.

The master and the detail report containers each have their own separate queries. You must create a relationship between the queries based on a data item that is common in both queries.

The common data item used to create the link does not need to appear in both reports but must be included in both of the underlying queries.

## Demo 3: Create a Revenue Report Using a Master Detail Relationship

### Purpose:

Management wants a report that shows planned revenue and actual revenue for 2006. They would also like to see the generated revenue broken out by quarters for each sales rep in each city. To do this, you will create a master-detail relationship on Country between a list and a crosstab.

Server: localhost  
 User/Password: brettontf/Education1!  
 Studio: Report Studio  
 Package: Go Data Warehouse (query)  
 Report Type: List  
 Folder: Sales and Marketing (query)  
 Namespace: Sales (query)

### Task 1. Create a list report.

- From the **Insertable Objects** pane, drag the following items to the list report:
  - **Employee by region** → **Country**
  - **Sales fact** → **Planned revenue, Revenue**
- Click **Country** and then click **Group / Ungroup**, with **Country** still selected, click **Sort**, and then click **Ascending**.
- Click **Filters**, **Edit Filters**, click **Add**, click **Advanced** and then click **OK**.
- Create a **Detail Filter** with the following expression:  
**[Sales (query)].[Time].[Year]=2006**
- Validate the expression, and then click **OK** twice.

## Task 2. Add a crosstab to the list.

1. In the **Insertable Objects** pane, from the **Toolbox** tab, drag a **Crosstab** object to the last column of the list.

The results appear as follows:

Country▲	Planned revenue	Revenue	Crosstab	
<Country>	<Planned revenue>	<Revenue>		
			Rows	Columns
				Measures

2. From the **Source** tab, add the following query items to the crosstab:
  - **Employee by region** → **City** to **Rows**
  - **Employee by region** → **Employee name** to **Rows**, nested as a child **City**
  - **Time** → **Quarter** to **Columns**
  - **Sales fact** → **Revenue** as **Measures**
3. Click the **Quarter** column header, and then click **Sort, Ascending**.
4. Click **Employee name** row header, and then click **Sort, Ascending**.
5. Click the **Quarter** column header, and then click **Aggregate - Total**.
6. With the **Total** column header selected, change the following properties:
  - Source Type: **Text**
  - Text: **2006 Total**

7. Click **Filters**, **Edit Filters**, click **Add**, click **Advanced**, and then click **OK**.
8. Create a Detail Filter with the following expression:

**[Sales (query)].[Time].[Year]=2006**

You have created the same filter as in the list container so that the report only shows data form 2006.

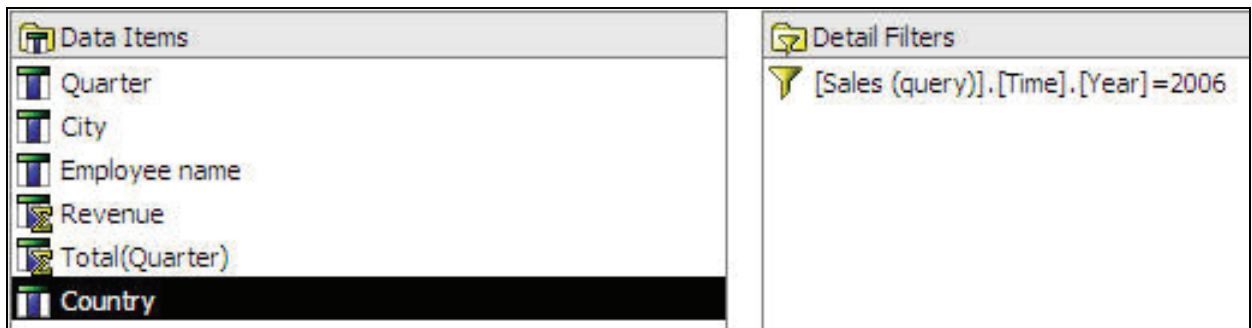
9. Validate the expression, and then click **OK** twice.

### **Task 3. Create a master-detail relationship and format the report.**

Although Country is not shown in the crosstab, you need to add it to the query so that a link can be created on Country between both data containers.

1. From **Query Explorer**, click **Query2**, and then from the **Insertable Objects** pane, **Employee by region** drag **Country** to the **Data Items** pane.

The results appear as follows:



2. From **Page Explorer**, and then click **Page1**.
3. Click anywhere in the crosstab, and then from the **Data** menu, click **Master Detail Relationships**.
4. Click **New link**, click **Country** in both **Query1** and **Query2**, and then click **OK**.

---

Task 3, Step 3. The Master Detail Relationships menu option is only active when have clicked inside the detail report object.

5. Double-click **Crosstab** list column header, type **Revenue by Quarter** and then click **OK**.
6. Type the report title as **Revenue by Country in 2006**.
7. From the toolbar click **Run Report**.

You can see the details of the revenue generated in each quarter, by each Sales rep, for each country. However, each crosstab is a different size. You will set the crosstab to be a fixed size to give the report a consistent appearance.

8. Close **IBM Cognos Viewer**.
9. Click the crosstab **Container Selector** to select the entire crosstab.
10. In the **Properties** pane, under **Positioning**, double-click beside **Table Properties**, select the **Fixed Size** check box, and then click **OK**.
11. From the toolbar click **Run Report**.

A section of the results appear as follows:

Revenue by Country in 2006							
Country	Planned revenue	Revenue	Revenue by Quarter				
Australia	41,383,351.34	38,968,802.62	Revenue	Q1	Q2	Q3	Q4
			Melbourne				2006 Total
			Alice Walter	2,019,726.71	2,119,397.51	2,992,620.71	3,374,957.17
			Dave Smythe	2,186,537.08	1,882,231.16	1,800,068.74	1,047,201.83
			Donald Ward	2,178,861.5	4,002,379	1,926,622.95	1,293,386.63
			Jackie Fulford	2,074,084.88	1,559,967.22	2,133,314.29	2,427,298.86
			Jake Cartel	207,467.54	377,394.22	103,522.89	894,281.45
Austria	30,068,727.76	28,348,967.66	Revenue	Q1	Q2	Q3	Q4
			Wien				2006 Total
			Jutta Shultz	2,930,989.73	2,536,379.67	1,667,594.69	2,803,828.28
			Sabine Grüner	2,444,012.59	2,680,555.17	3,670,905.95	3,397,724.96
Belgium	28,975,172.35	27,345,821.17	Revenue	Q1	Q2	Q3	Q4
			Heverlee				2006 Total
			Carlotta Decoudreau	674,535.53	964,813.95	978,345.94	759,347.99
			François De Crée	670,986.08	1,257,910.97	229,152.83	199,162.77
			Gracy Gellens	3,108,720.85	2,673,678.14	3,566,876.11	3,678,552.17
			Joseph Chouteau	1,642,937.87	2,625,399.99	2,336,208.07	1,979,191.91

The crosstabs all have a consistent size.



## 12. Close **IBM Cognos Viewer**.

Leave Report Studio open for the upcoming workshop.

**Results:**

**You created a revenue report using master-detail relationships. You linked the master list with the detailed crosstab by using Country, which is a data item common to both queries.**

## Summary

- At the end of this course, you should be able to:
  - create reports by merging query results
  - create reports by joining queries
  - combine data containers based on relationships from different queries

**INTERACTION - Check Sticker:** Check mark each objective as you summarize it.

## Workshop 1: Create a Report Comparing Quantity Sold in Different Order Years

You have been asked to create a report comparing the percentage change in quantity sold by different order methods between 2004 and 2005, and between 2005 and 2006.

To accomplish this:

- Create a list report using the GO Data Warehouse (query) package, Sales and Marketing (query) folder, Sales (query) namespace. Create three queries, each containing the Order method type data item and a data item for quantity sold in one of the three order years. Filter each query for the appropriate year and give each Quantity data item a descriptive name and label.
- Use joins to present this data in a single query.
- Add the data from the joined query to the list report.
- Add columns to the report (using query calculations) to display the percentage change in quantity sold from 2004 to 2005, and from 2005 to 2006.
- Format the two query calculation columns to display data as a percentage with two decimal places and then run the report.

For more detailed information outlined as tasks, see the Task Table section.

For the final results, see the Workshop Results section that follows the Task Table section.

## Workshop 1: Task Table

<b>Task 1: Add data and a filter to three queries to show quantity sold by each order method in 2004, 2005, and 2006.</b>	
<b>Where to Work</b>	<b>Hints</b>
Query Explorer, Query1, Query2, Query3, Data Items pane	<ul style="list-style-type: none"> <li>• Add Order method and Quantity as data items to each query.</li> </ul>
Query1, Query2, Query3, Data Items pane	<ul style="list-style-type: none"> <li>• Add a filter to each query to retrieve data for 2004, 2005, 2006, respectively.</li> </ul>
Toolbox and Properties pane	<ul style="list-style-type: none"> <li>• Name and Label properties for Quantity data item: Quantity 2004, Quantity 2005, Quantity 2006 respectively.</li> </ul>
<b>Task 2: Combine data from Query1 and Query2 using a join relationship, and then add data to Query4.</b>	
<b>Where to Work</b>	<b>Hints</b>
Query Explorer, Toolbox	<ul style="list-style-type: none"> <li>• Add a Join object to join Query 1 and Query 2.</li> </ul>
Join Relationships dialog box	<ul style="list-style-type: none"> <li>• Create a new link between the Query 1 and Query 2 on Order method type data item.</li> <li>• Cardinality: 1..1 = 1..1.</li> </ul>
Query4	<ul style="list-style-type: none"> <li>• From Query 1, add Order method type, Quantity 2004, and Quantity 2005 to Query4.</li> </ul>

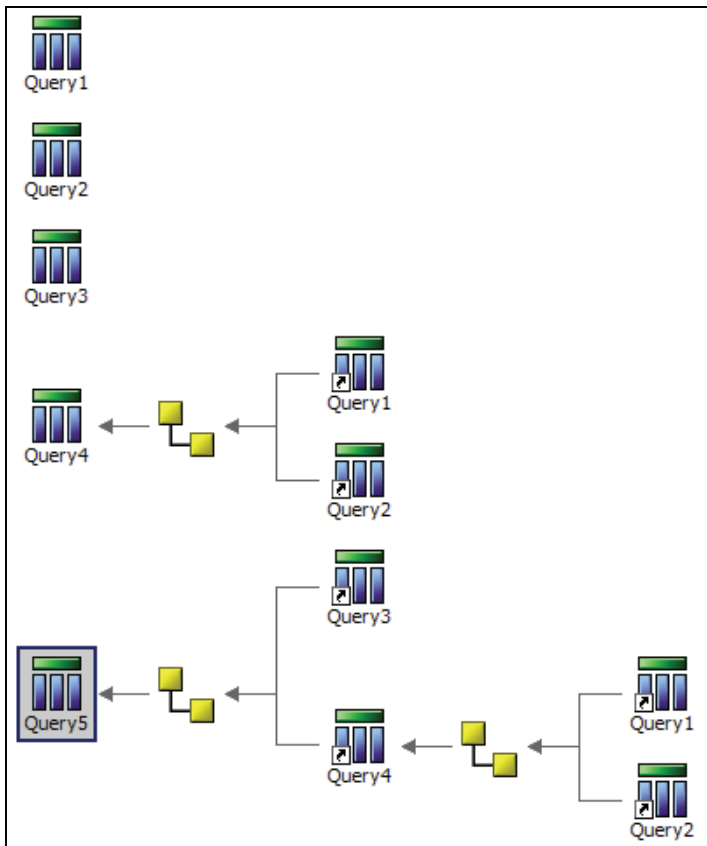
<b>Task 3: Combine data from Query3 and Query4 using a join relationship, and then add data to Query5.</b>	
<b>Where to Work</b>	<b>Hints</b>
Query Explorer, Toolbox	<ul style="list-style-type: none"> <li>• Add a Join object to join Query 3 and Query 4.</li> <li>• Expand References (Right-click in work area)</li> </ul>
Join Relationships dialog box	<ul style="list-style-type: none"> <li>• Create a new link between the Query 3 and Query 4 on Order method type data item.</li> <li>• Cardinality: 1..1 = 1..1.</li> </ul>
Query5	<ul style="list-style-type: none"> <li>• From Query 4, add Order method type, Quantity 2004, Quantity 2005.</li> <li>• From Query 3, add Quantity 2006.</li> </ul>
<b>Task 4: Add data from Query5 to the list report.</b>	
<b>Where to Work</b>	<b>Hints</b>
Page1, List Properties pane, Query	<ul style="list-style-type: none"> <li>• Link Query5 to the list report.</li> </ul>
List report	<ul style="list-style-type: none"> <li>• Add data items from Query5 to the list.</li> </ul>

<b>Task 5: Add query calculations displaying the percentage change in quantity sold between 2004 and 2005 and between 2005 and 2006.</b>	
<b>Where to Work</b>	<b>Hints</b>
Page1, Insertable Objects pane, Toolbox	<ul style="list-style-type: none"> <li>• Drag a Query calculation between Quantity 2004 and Quantity 2005</li> <li>• Name: % Change (2004 – 2005).</li> <li>• Expression:  <math display="block">([Query4].[Quantity\ 2005]-[Query4].[Quantity\ 2004])/[Query4].[Quantity\ 2004]</math> </li> </ul>
	<ul style="list-style-type: none"> <li>• Drag a Query calculation between Quantity 2005 and Quantity 2006</li> <li>• Name: % Change (2005 – 2006).</li> <li>• Expression:  <math display="block">([Query3].[Quantity\ 2006]-[Query4].[Quantity\ 2005])/[Query4].[Quantity\ 2005]</math> </li> </ul>
<b>Task 6: Format the two calculated columns to display data as a percentage, and then run the report</b>	
<b>Where to Work</b>	<b>Hints</b>
Properties pane, Data Format cell	<ul style="list-style-type: none"> <li>• Format the column body as percentage with 2 decimal places.</li> </ul>
Toolbar	<ul style="list-style-type: none"> <li>• Run the report.</li> <li>• Close Report Studio and Internet Explorer.</li> </ul>

If you need more information to complete a task, see the Step-by-Step instructions at the end of the Workshop.

## Workshop 1: Results

By the end of Task 3, the Query Explorer appears as shown below:



When you run the report, the result appears as shown below:

Order method type	Quantity 2004	% Change (2004 - 2005)	Quantity 2005	% Change (2005 - 2006)	Quantity 2006
E-mail	1,986,395	-51.25%	968,453	-57.76%	409,049
Fax	688,786	-38.15%	426,006	-41.50%	249,234
Mail	488,735	-30.51%	339,635	-64.78%	119,619
Sales visit	2,640,065	-32.62%	1,778,941	-20.66%	1,411,468
Special	340,021	-25.76%	252,429	-94.60%	13,622
Telephone	3,979,898	-43.42%	2,251,898	-69.60%	684,667
Web	10,050,830	74.19%	17,507,323	31.68%	23,054,131

## Workshop 1: Step-by-Step Instructions

Server: localhost  
 User/Password: brettontf/Education1!  
 Studio: Report Studio  
 Package: Go Data Warehouse (query)  
 Report Type: List  
 Folder: Sales and Marketing (query)  
 Namespace: Sales (query)

### Task 1. Add data and a filter to three queries to show quantity sold by each order method in 2004, 2005, and 2006.

1. Point to **Query Explorer**, click **Queries**, and then drag two more **Query** objects to the work area.
2. In the work area, double-click **Query1**, and then add the following to the **Data Items** pane:
  - **Order method** → **Order method type**
  - **Sales fact** → **Quantity**
3. From the **Time** query subject, drag **Year** to the **Detail Filters** pane, and then create the detail filter expression as follows:  
**[Sales (query)].[Time].[Year] =2004**
4. Validate the expression, and then click **OK**.
5. In the **Data Items** pane, click **Quantity**, and then in the **Properties** pane, change the **Name** and **Label** properties to **Quantity 2004**.
6. On the toolbar, click **Up**, and then repeat steps 2-7, for **Query2** and **Query3**:

	Query2	Query3
<b>Filter on</b>	2005	2006
<b>Name and Label</b>	Quantity 2005	Quantity 2006



## **Task 2. Combine data from Query1 and Query2 using a join relationship, and then add data to Query4.**

1. On the toolbar, click **Up**.
2. From the **Insertable Objects** pane, drag a **Join** object to the work area below the three queries, and then drag **Query1** and **Query2** to the two drop zones.
3. In the work area, double-click the **Join** object, in the **Join Relationships** dialog box, click **New Link**, and then ensure a link is created between the **Order method type** items in **Query1** and **Query2**.
4. In the left and right **Cardinality** lists, click **1..1**, ensure the **Operator list** contains **=**, and then click **OK**.
5. In the work area, double-click **Query4**, and then from the **Insertable Objects** pane under **Query1**, drag **Order method type** and **Quantity 2004** to the **Data Items** pane.
6. From the **Insertable Objects** pane under **Query2**, drag **Quantity 2005** to the **Data Items** pane.

### **Task 3. Combine data from Query3 and Query4 using a join relationship, and then add data to Query5.**

1. On the toolbar, click **Up**.
2. From the **Insertable Objects** pane, drag a **Join** object to the work area below the queries, and then drag **Query3** and **Query4** to the two drop zones.
3. Right-click the work area, and then click **Expand References**.
4. In the work area, double-click the **Join** object to the right of **Query5**, and then in the **Join Relationships** dialog box, click **New Link**.
5. Ensure a link is created between the **Order method type** items in **Query3** and **Query4**, in the left and right **Cardinality** lists click **1..1**, and then ensure the **Operator** is set to **=**.
6. Click **OK** to close the dialog box, and then in the work area, double-click **Query5**.
7. From the **Insertable Objects** pane under **Query4**, drag the **Order method type**, **Quantity 2004** and **Quantity 2005** items to the **Data Items** pane, and then under **Query3**, drag the **Quantity 2006** item to the **Data Items** pane.

### **Task 4. Add data from Query5 to the list report.**

1. Point to **Page Explorer**, click **Page1**, and then click a column in the list report.
2. Click the list **Container Selector** to select the entire list.
3. In the **Properties** pane, click the **Query** cell, and then in the list, click **Query5**.
4. In the **Insertable Objects** pane, click the **Data Items** tab, Shift+click all the items under **Query5**, and then drag them to the list report.

## **Task 5. Add query calculations displaying the percentage change in quantity sold between 2004 and 2005 and between 2005 and 2006.**

1. In the **Insertable Objects** pane, click the **Toolbox** tab, and then drag a **Query Calculation** object to the list report to the right of the **Quantity 2004** column.
2. Type the name as **% Change (2004 - 2005)** and then click **OK**.
3. Create the following query calculation expression:

**$$\frac{([\text{Query4}].[\text{Quantity 2005}] - [\text{Query4}].[\text{Quantity 2004}])}{[\text{Query4}].[\text{Quantity 2004}]}$$**

4. Repeat steps 1–3 to add the following calculated column between the **Quantity 2005** and **Quantity 2006** columns, using the following query calculation expression:

Column title: **% Change (2005 - 2006)**

Query calculation expression: **$$\frac{([\text{Query3}].[\text{Quantity 2006}] - [\text{Query4}].[\text{Quantity 2005}])}{[\text{Query4}].[\text{Quantity 2005}]}$$**

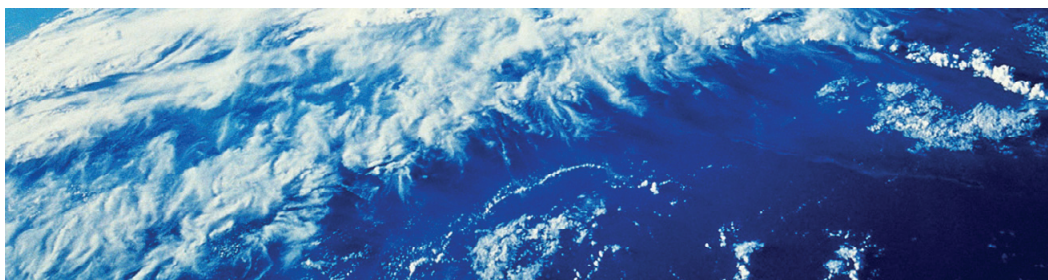
## **Task 6. Format the two calculated columns to display data as a percentage, and then run the report.**

1. In the list report, click the **% Change (2004 - 2005)** column body, and then in the **Properties** pane, under **Data**, double-click the **Data Format** cell.
2. In the **Data Format** dialog box, in the **Format type** list, click **Percent**, and then in the **Properties** pane, click the **No. of Decimal Places** cell.
3. In the list, click **2**, and then click **OK**.
4. Repeat steps 1-3 to format the column body in the **% Change (2005 - 2006)** column.
5. From the toolbar, click **Run Report**.
6. Close **IBM Cognos Viewer**, close **Report Studio** without saving the report, and then close **Internet Explorer**.



# **Distribute Reports Through Bursting**

IBM Cognos BI



**Business Analytics**

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## Objectives

- At the end of this course, you should be able to:
  - distribute reports using bursting
  - create burst keys
  - identify report recipients and data items using burst tables
  - distribute reports using email and IBM Cognos Connection

---

If you intend to teach this module, students should be familiar with:

- IBM Cognos Connection
- Report Expressions
- Filters
- Query Explorer

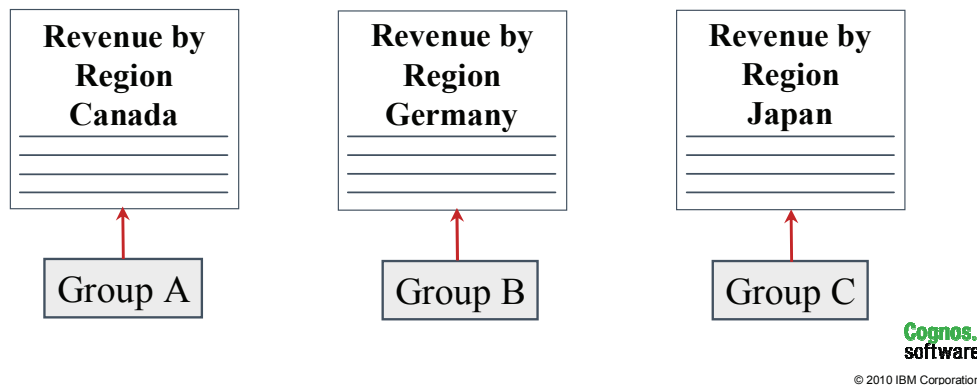
Suggested modules to reference:

- Create List Reports
- Focus Reports Using Filters
- IBM Cognos BI: IBM Cognos Connection for Consumers (v10.1) WBT

**INTERACTION - Star Sticker:** Star each objective as it is introduced

## Burst Reports

- When you burst a report, you run a report once and divide the results for distribution to multiple recipients.
- Each report recipient will only see the subset of data to which they have access.



While authoring a report, you can choose to burst to email addresses or to a directory (in the burst options).

Just as with regular reports, burst reports can be distributed in multiple formats (for example, PDF, XML, XLS and CSV).

---

IBM Cognos BI leverages the existing security infrastructure, in the namespace to dynamically obtain email addresses.

For example, sales people in different regions may need to know the sales target for each country. Use burst reports to send each salesperson the information they need.

**INTERACTION - Toolbar Emoticons > Raise Hand:** Ask the participants, who might see need for this capability at their place of business.



## Configure IBM Cognos BI to Perform Bursting

- To burst report data, you need to:
  - Add burst recipients in Report Studio
  - Set burst options in Report Studio
  - Run the report in IBM Cognos Connection with bursting enabled

The burst recipient is a data item in your report that determines who will receive the burst reports.

The data source can be an existing employee table or a custom burst table that you create.

In order to burst a report, you must add a data item to the report that tells IBM Cognos BI who the intended recipients are and how you intend to distribute the reports.

---

A burst table maps recipients or groups of recipients to specific data that they are allowed to see and can be a separate table in your data source.

**INTERACTION - AppShare:** Show, at this point, the three different areas of Cognos BI where each operation is performed.

## Step 1: Add Burst Recipients

- You must specify a burst recipient to define who will receive the report.
- You can choose to burst to directories or e-mail addresses or both.

Burst recipients can be users, groups, roles, email contacts, or email distribution lists.

When you burst a report to e-mail, you can either:

- reference the e-mail address in the authentication source
- use the e-mail address as it is stored in your data source
- supply the e-mail address in the report itself by creating a calculated field
- reference the appropriate burst table column

If the authentication provider does not contain email information, (such as LDAP), the email address can be manually entered in IBM Cognos Connection in the user's personal information.

Privileges are set differently at each organization. By default, a report author does not have rights to make changes to the personal information of other users, in which case your administrator may need to do this for you.

**INTERACTION - Toolbar Emoticons > Raise Hand:** ask the participants if there is anyone with email data that might be able to take advantage of this?

## Step 2: Set Burst Options in Report Studio

- Group the report on the data item to burst on
- Burst groups define how the data should be separated
- Burst recipient determines who receives the subset of data
- Burst key defines how the report is burst to its recipients

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If you burst on a query item that is not a part of the layout, the same report will be distributed to all the burst recipients. This allows you to use the burst functionality to limit who receives the report, even when everyone who has access to the report sees the same thing. This is similar to drilling through with no parameters in the target.

If you only want to e-mail the report to various recipients and not burst to the portal, your burst recipient must be an email address.

If you want the report to be e-mailed as well as burst to the web, you must specify your Burst Recipient Type to be Directory Entries.

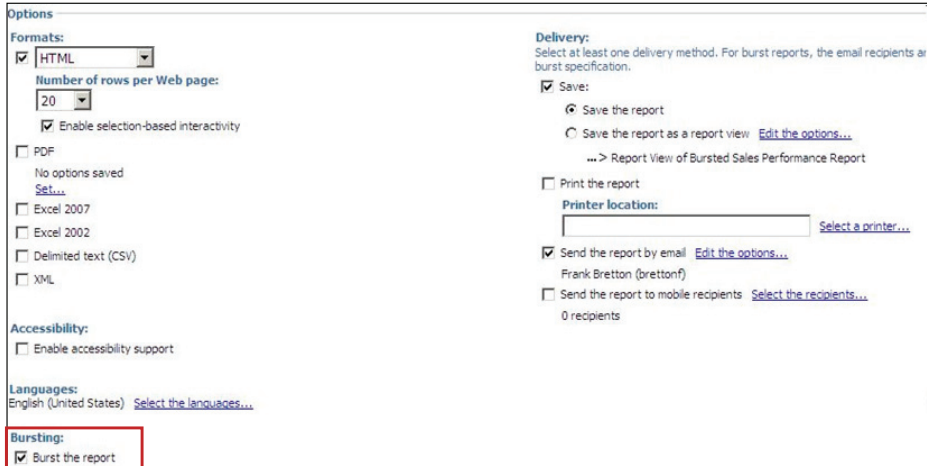
The Label field in the Burst Options dialog box determines how the reports are labeled in IBM Cognos Connection. If you use a data item like Country, the report will be named after the country. If you choose the burst key, the report will be named after the burst key value, such as CAMID("Australia").


If no label is set, the default label is the data item that is being grouped.

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## Step 3: Enable Burst Reports in IBM Cognos Connection

- You can burst the report by running it from IBM Cognos Connection.





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You can burst the report immediately or schedule it to run at a later date and time.

If you intend to email the reports, you must select the Send the report by email option as well.

When emailing the report, you have the option of sending the report as an attachment, sending a link to the report, or both.

To burst the report, simply run the report with options in IBM Cognos Connection. In the advanced options, select the Burst the report check box. Note that this box is only available if the report has the check box selected for Make available for bursting selected, done in Report Studio (see previous slide).

IBM Cognos lets administrators disable the ability to send reports as email attachments to ensure that non-IBM Cognos users do not receive reports. If this is the case, you may still send links to reports. Because these links are accessed through the IBM Cognos system, users must log on to IBM Cognos to access a report.

## Demo 1: Burst a Report to Email Recipients Using a Data Item

### Purpose:

Three sales representatives at The Great Outdoors Company need to know the total number of items that they have sold of each product line and type. However, employees need to see only data pertaining to their own sales. You will burst a product sales report so that each sales representative will see only his or her sales totals.

Server: localhost  
User/Password: brettonf/Education1!  
Studio: Report Studio  
Package: Go Data Warehouse (query)  
Report Type: List  
Folder: Sales and Marketing (query)  
Namespace: Sales (query)

Note: In this demo, you will dynamically build an email burst key rather than reference a burst table.

### Task 1. Create a report with product sales information.

1. In **Report Studio**, click **File**, **Open**, and navigate to **Public Folders\B5159\03-Distribute Reports Through Bursting\Demo 1 Start**, and then click **Open**.

To include only the data for the three sales reps that need to know what they have sold, you will filter the report.

2. On the toolbar, click **Filters**, then **Edit Filters**, and then click **Add**.
3. Click **Advanced**, and then click **OK**.

4. On the **Source** tab, expand the **Employee by region** query subject, and then double-click **Last name** to add it to the expression.
5. At the end of the expression, type **IN ('Scott','Sinden','Torta ')**.

The expression appears as follows:

**[Sales (query)].[Employee by region].[Last name] IN ('Scott', 'Sinden', 'Torta')**

6. Click **Validate**, and then after the expression is validated without any errors, click **OK** twice.
7. From the toolbar click **Run Report**.

The report is filtered to only include sales made by Alessandra Torta, Bart Scott, John Sinden.

The result appears as shown below:

Product line	Product type	Product	Quantity	Revenue
Alessandra Torta				
Camping Equipment	Cooking Gear	TrailChef Canteen	4,539	55,042.06
		TrailChef Cook Set	8,516	432,851.68
		TrailChef Cup	14,887	48,060.15
		TrailChef Deluxe Cook Set	5,260	634,770.66
		TrailChef Double Flame	2,257	306,593.1
		TrailChef Kettle	8,060	101,092.81
		TrailChef Kitchen Kit	6,234	142,467.02
		TrailChef Single Flame	8,164	512,200.86
		TrailChef Utensils	7,506	140,241.37
		TrailChef Water Bag	24,990	144,791.08
	Cooking Gear - Total			2,518,110.79
Lanterns	EverGlow Butane	1,018	64,963.63	
	EverGlow Double	436	22,737.4	

8. Click **Page down** to view the other users.

---

In this example participants could use the Email query item in the model. However, a company can change its domain name, but not have the email addresses updated yet. To get these reports delivered right away, you can create your own burst key to send these reports to the new accounts

## 9. Close **IBM Cognos Viewer**.

You will now create a burst key data item that will let you distribute this report to sales reps using their email addresses.

### **Task 2. Create a burst key.**

You will create a dynamic email data item that combines the sales representative's first and last name and the domain name. The email data item will be used as a burst key for burst recipients.

1. On the **Explorer** bar, point to **Query Explorer**, and then click **Query1**.
2. In the **Insertable Objects** pane, click the **Toolbox** tab, and then drag a **Data Item** to the **Data Items** pane.
3. In the Expression Definition pane, create the following expression:  
`lower(substring([Sales (query)].[Employee by region].[First name],1,1)+[Sales (query)].[Employee by region].[Last name]) + '@grtd123.com'`  
 Hint: Click the **Source** tab to locate [Sales (query)].[Employee by region].[First name] and [Sales (query)].[Employee by region].[Last name]
4. Validate the expression, and then click **OK** twice to close each dialog box.
5. In the **Properties** pane, change the **Name** property to **Burst\_Key\_Email**

### **Task 3. Set the burst options.**

1. From the **File** menu, click **Burst Options**.
2. Select the **Make report available for bursting** check box.
3. In the **Burst Groups** section, in the **Query** list, select **Query1**.

You will not enter a value for the Label, because you will use the default label, Employee name.

---

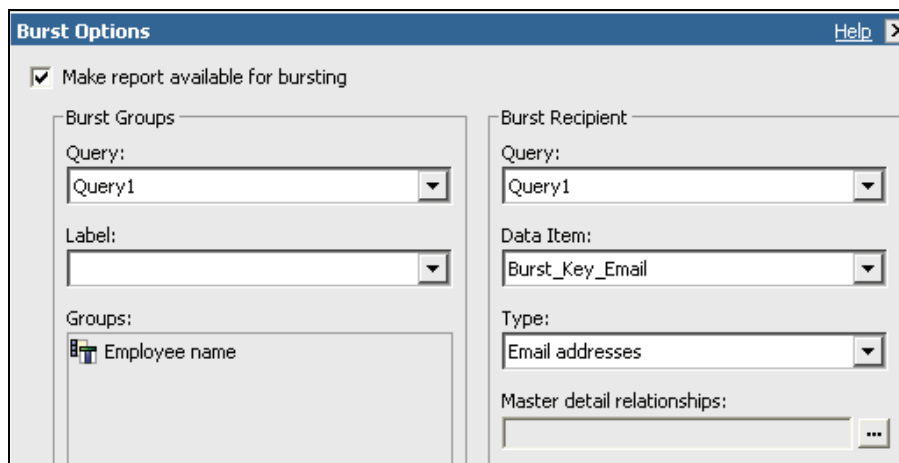
Task 2. With our package, it is not necessary to create a data item called Burst\_Key\_Email, since the Email query item could be used. However, the steps in this task show how to create the field if it is not a part of the data source.

Task 2, Step 3. The substring() returns the first initial of the first word in the [First name]. If a person's name is Jean Marc, the substring function will return "J".

Task 3, Step. This check box sets a flag for IBM Cognos Connection to allow Bursting.

4. Below **Groups**, click **Edit**, and then double-click **Employee name** to add it to the **Groups** folder.
5. Click **OK**.
6. In the **Burst Recipient** section, in the **Query** list, click **Query1**, in the **Data Item** box list click **Burst\_Key\_Email**, and then in the **Type** list, click **Email addresses**.

The result appears as shown below:



With these options, the report will be distributed by email (Type) to the email address specified in Burst Key. The report is grouped by Employee name, and each employee only receives a report with their data.


7. Click **OK**.
8. From the **File** menu, click **Save as**, and then in the **Save in** box, navigate to **My Folders**.
9. In the **Name** box, type **Demo 1\_Distribute Reports Through Bursting** and then click **Save**.
10. Minimize Report Studio

---




By selecting Email addresses (in the Burst Options dialog box), you are indicating that the email address is available in the Burst\_Key data item.



## Task 4. Burst the report and view the results.

1. From **IBM Cognos Connection**, open a new **Internet Explorer** tab.
2. In the address window type the following address  
**http://localhost/mail/aperson.nsf** and then click press **Enter**.
3. If prompted, type in the following credentials:  
**Admin Person/ Education1!**
4. Click **Mail** .
5. Return to the **IBM Cognos Connection** tab, and navigate to **My Folders**.
6. Beside **Demo 1\_Distribute Reports Through Bursting**, click **Run with options**, and then click **advanced options**.
7. Select **Run in the background**.
8. Select **Burst the report**, and then select **Send the report by email**.
9. Click **Run**, and then click **OK**.
10. After a moment click **Refresh** to update the page. (May need to repeat this until the report updates.)
11. In **IBM Cognos Connection**, for **Demo 1\_Distribute Reports Through Bursting**, below **Actions**, click **More**, and then click **View report output versions**.

The output versions appear as shown below:

Formats		Languages ▾
 HTML	Alessandra Torta	English (United States)
 HTML	Bart Scott	English (United States)
 HTML	John Sinden	English (United States)

12. Click **Close**.

13. Open the **Inbox** Internet Explorer tab, type the following address **http://localhost/mail/atorta.nsf**, click the **Mail** icon, and then if prompted for credentials, use the following: **Admin Person/Education!**

The burst reports appear in the Inbox.

14. Double-click the email from **fbretton** (Frank Bretton, the report author).
15. If an Internet Explorer message appears, click **Cancel**.

The email to Alessandra Torta appears as shown below:

Report: Demo 1\_Distribute Reports Through Bursting

FBretton@grtd123.com

To: atorta@grtd123.com

Product line	Product type	Product	Quantity	Revenue
Alessandra Torta				
Camping Equipment	Cooking Gear	TrailChef Canteen	4,539	55,042.06
		TrailChef Cook Set	8,516	432,851.68
		TrailChef Cup	14,887	48,060.15
		TrailChef Deluxe Cook Set	5,260	634,770.66
		TrailChef Double Flame	2,257	306,593.1
		TrailChef Kettle	8,060	101,092.81
		TrailChef Kitchen Kit	6,234	142,467.02
		TrailChef Single Flame	8,164	512,200.86
		TrailChef Utensils	7,506	140,241.37
		TrailChef Water Bag	24,990	144,791.08
Cooking Gear - Total			2,518,110.79	
Lanterns	EverGlow Butane	1,018	64,963.63	
	EverGlow Double	436	22,737.4	
	EverGlow Kerosene	3,343	101,835	
	EverGlow Lamp	9,830	242,148.29	

16. Scroll to the end of the report to see that **Alessandra Torta** has generated **\$33,536,672.69** in revenue.
17. Repeat steps 13-15 for:
  - Bart Scott - **<http://localhost/mail/bscott.nsf>** - total revenue of \$42,640,308.56
  - John Sinden - **<http://localhost/mail/jsinden.nsf>** - total revenue of \$4,965,193.22
18. Return to the **IBM Cognos Connection** tab, then maximize **Report Studio**  
Leave Report Studio open for the next demo.

**Results:**

**By creating a burst key and setting the appropriate burst options in Report Studio, you were able to burst product sales report to sales reps. Each sales rep received only the data specific to them.**

## Examine a Burst Table

- The burst table maps recipients or groups of recipients to specific data that they are allowed to see.
- The burst table typically contains a list of recipients and the data item you will burst on.

Recipients	CountryCode
CAMID("Canada")	4
CAMID("US")	3

CAMID (Cognos Access Manager ID) is an internal path to users, groups, roles, contacts or distribution lists.

The list of recipients can be either CAMID, or it could be the alternate search path syntax.

The burst table must also include the data item you intend to burst on. In the slide example, these values are in the CountryCode column. This column will be used to create the appropriate relationship in Framework Manager.

Burst tables are typically created by the Database Administrator, and the recipient values are provided to the DBA by the report author.

After the DBA creates the burst table in the source database, the metadata modeler must import the table's metadata into Framework Manager. The modeler must create a relationship between the burst table query subject and the query subject containing the item you, the report author are bursting on.

**INTERACTION - Toolbar Emoticons > Raise Hand:** Ask participants if any of them know that they will be using this option.

## Examine a Mixed Recipient List

- You can mix the recipient types in your burst table for greater flexibility in your distribution methods.

Recipients	CountryCode
CAMID("Canada")	4
CAMID(":/contact[@name='John Sinden']")	3
CAMID(":/distributionList[@name='European Partners']")	1
CAMID("Local NT ID:u=S-1-5-21-1434109735-2681017343-4103935507-1037")	1
fbretton@grtd123.com	4

In a mixed recipient list scenario, you should not mix email address recipients and alternate search path recipients. Since the alternate search path syntax contains the @ symbol, it will be mistaken for an email address.

---

If you are using the alternate search path syntax, you must set this option to Directory entries. This is because the syntax contains the @ symbol which will be mistaken for an e-mail address.

## Obtain Burst Recipient Values for LDAP Namespaces

- You can obtain values for burst recipients by examining their properties in IBM Cognos Administration.
- You can also use an alternate search path syntax that supports user-friendly IDs.



**Search Path:**  
**CAMID("LDAP\_ID:u:4**  
**8f25b92-1dd211b2-**  
**8002ee39-**  
**d93380c7")**

**Alternate Search Path Syntax: /directory/namespace**  
**[@name="LDAP"]//account[@userName="brettonf"]**

**Cognos.**  
**software**

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You can copy the CAMID into the burst recipient expression.

You can burst to both directory and the user's email address if your authentication provider contains the users email address, or if you enter it manually in IBM Cognos Connection for each user.

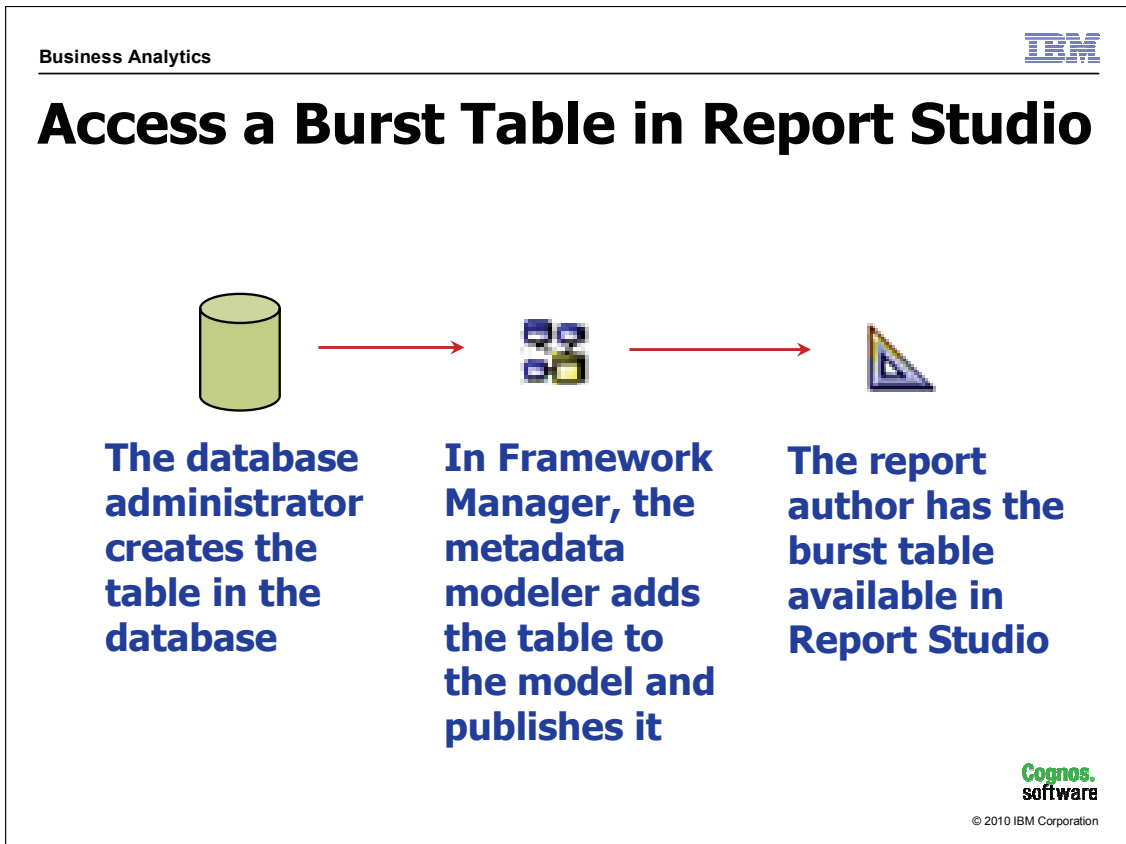
The CAMID is accessed from the Properties page of any object. The CAMID is similar to the MUN, in that it uniquely identifies objects.

The double front slash preceding the account element indicates that you are searching all accounts under the specified namespace.

If you are using an NTLM or a Series 7 namespace, the user IDs are alphanumeric or numeric. You can create an alternative search path that dynamically generates user IDs based on users' names and not alphanumeric or numeric IDs. Using this CAMID syntax, you can substitute a static user ID (such as brettonf in the slide example) with a dynamically generated user ID when creating your burst key.

The search path for NTLM namespace is of the form: CAMID("Local NT ID: u=S-1-5-21-1004336348-688789844-682003330-1134").

**INTERACTION - Toolbar Emoticons > Raise Hand:** Ask participants what authentication provider they are using and highlight the appropriate approach from the instructor notes above.



The metadata modeler can set access permissions so that only specific report authors can see the burst table.

Burst tables can be built independently of Report Studio or IBM Cognos BI using user account information from external authentication providers. This information is extracted from the namespace, arranged to fit the structure of CAMIDs, and then added to a table in a data source.

Burst tables will often be created programmatically since typing each individual record into a database table would be very time consuming.

Most popular programming languages can incorporate libraries that allow them to interact with security software in this way. For example, LDAP security information can be accessed using the Java Naming and Directory Interface (JNDI) libraries.

## Burst to IBM Cognos Connection: Considerations

- You can burst the report to the Public Folders in IBM Cognos Connection.
- Bursting the report generates report outputs that are specific to the user that is currently logged in.

To ensure that a report is burst to the Public Folders in IBM Cognos Connection, you must specify that you want to burst to Directory entries in the Burst Options dialog box in Report Studio.

If the Send the report by email option is also selected on the Run with advanced options page, and the email addresses for the recipients are accessible by IBM Cognos BI, recipients will also receive the report by email.

After a report is burst, each user will see the data subset specific to them.

---

To view output versions for a report, you can click the View output versions icon in Public Folders.

Administrators have permission to view all output versions of the report in the Schedule Management tool of IBM Cognos Connection.



## Demo 2: Burst a Report to IBM Cognos Connection Using a Burst Table

### Purpose:

You want sales reps to see product revenue that was generated by their country. For example, sales reps from Italy should only see report outputs that contain Italian sales data. To accomplish this, you will use the data in a burst table to burst a report to Public Folders.

Server: localhost  
User/Password: brettonf/Education1!  
Studio: Report Studio  
Package: Go Data Warehouse (query)  
Report Type: List  
Folder: Sales and Marketing (query)  
Namespace: Sales (query)

### Task 1. Create a report that displays product revenue by country.

1. In Report Studio, from the **File** menu, click **Open**, navigate to **Public Folders\B5159\03-Distribute Reports Through Bursting\ Demo 2 Start**, and then click **Open**.
2. Point to **Query Explorer**, and then click **Query1**.
3. In the **Insertable Objects** pane, expand the **Burst table by country** query subject, and then drag **Recipients** to the **Data Items** pane.

The Burst table by country table includes the Country CAMID Recipients and the Country Code for each user.

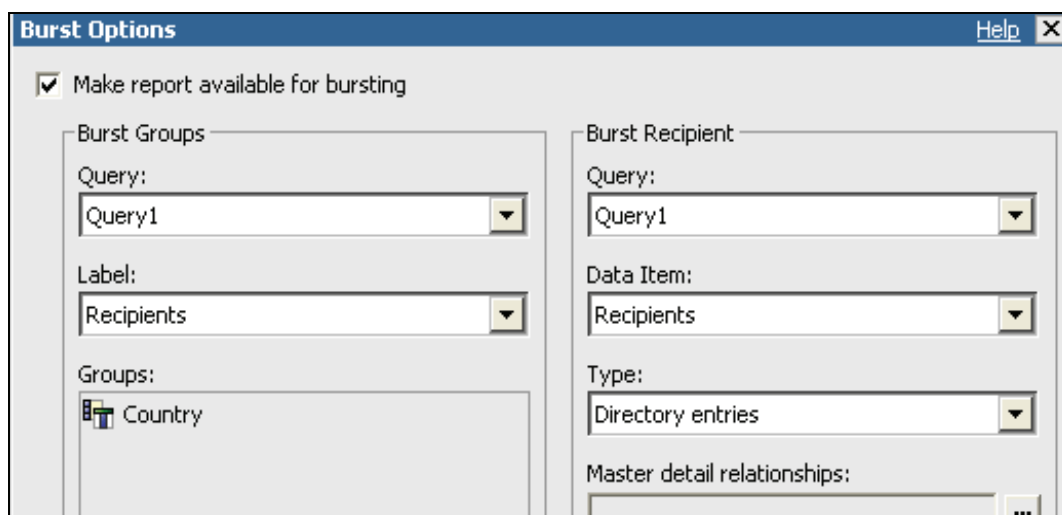
## Task 2. Set Burst Options.

1. From the **File** menu, click **Burst Options**, and then select the **Make report available for bursting** check box.
2. In the **Burst Groups** section, in the **Query** list, click **Query1**, and then in the **Label** list, click **Recipients**.

The label identifies the text that appears in the report name when burst to the web.

3. Below **Groups**, click **Edit**, double-click **Country** to add it to the **Groups** folder, and then click **OK**.
4. In the **Burst Recipient** section, in the **Query** list, click **Query1**, then in the **Data Item** list, click **Recipients**, and then in the **Type** list, click **Directory entries**.



The result appears as shown below:



A report will be generated for each country, as indicated by the Groups, and will be distributed to each burst recipient, in this case, country. Each report will be labeled by the Recipients, which is the CAMID of a country.

5. Click **OK**.
6. From the **File** menu, click **Save As**, and then in the **Save in** box, navigate to **Public Folders/B5159**.
7. In the **Name** box, type **Demo 2\_Distribute Reports Through Bursting**, and then click **Save**.
8. Close **Report Studio**.

### Task 3. Burst the report.

1. In **IBM Cognos Connection/Public Folders/B5159**, click **Refresh**, then beside **Demo 2\_Distribute Reports Through Bursting**, click **Run with options**.
2. Click **advanced options**, and then click **Run in the background**.
3. Select **Burst the report**, click **Run**, and then click **OK**.
4. Beside **Demo 2\_Distribute Reports Through Bursting**, click **View the output versions for this report** .
5. If the icon is not yet visible, click **Refresh** .

Three output versions were created for this report: one each for Australia, Italy, and United States. Because you are logged in as Frank Bretton, a report author, you can see all three output versions.

The result appears as shown below:

Formats		Languages ▾
 HTML	CAMID("Australia")	English (United States)
 HTML	CAMID("Italy")	English (United States)
 HTML	CAMID("US")	English (United States)

Each report labeled by "Recipients", a CAMID, as you specified earlier. Return to Task 2, Step 6, and demonstrate changing the value to the label to Country, and burst the report again to see how the name changes.

6. Click **Close**, click **Log Off**, and then click **Log on again**.
7. In the **User ID** box, type **scottb**, in the **Password** box, type **Education1!**, and then click **OK**.
8. From the **Welcome** page, click **IBM Cognos content**, click the **B5159/Module 03\_Distribute Reports Through Bursting** folder, and then beside **Demo 2\_Distribute Reports Through Bursting**, click **View the output versions for this report**.

Only one output version is shown, because Bart Scott belongs to the US group.

9. Click **HTML** .

A section of the report appears as shown below:

Country	Product line	Product type	Revenue
United States	Camping Equipment	Cooking Gear	43,152,191
		Lanterns	21,597,711.83
		Packs	57,520,074.37
		Sleeping Bags	50,338,776.21
		Tents	90,663,037.65
	Camping Equipment - Total		263,271,791.06
	Golf Equipment	Golf Accessories	8,689,007.87
		Irons	41,211,260.58
		Putters	17,474,039.96
		Woods	52,028,862.93
	Golf Equipment - Total		119,403,171.34

10. Click **Return**, and then click **Close**.
11. Click **Log Off**, and then click **Log on again**.
12. In the **User ID** box, type **brettonf**, in the Password box, type **Education1!** and then click **OK**.

Leave IBM Cognos Connection open for the next demo.

**Results:**

**You created a report that shows how much revenue each country generated by product type. You added a burst key to the report, set the burst options, and burst the report to the Web.**

## Burst a Multi-Dimensional Container

- You can only add a burst key to a data container with one dimension, such as a list report.
- If you want to burst a data container with multiple dimensions, such as a chart or a crosstab, create a master-detail relationship between this query and a single dimensional query, and then add the burst key to the single dimensional query.

An easy way to create a master-detail relationship for a multi-dimensional data container is to:

1. Create a list report with the item that you want bursting to group on as your first column. This will be the master list.
2. Insert your chart or crosstab as the second column of the list. This automatically creates a second query, which will be the detail query.
3. Add the item that you will group on to your chart or crosstab.

In the list, create a section with the item you want to group on.

## Demo 3: Burst a Crosstab Report to Public Folders Using a Burst Table

### Purpose:

You want sales reps to view a crosstab report of the revenue generated by their country by product line and year. For example, sales reps from Italy will see a report that contains Italian sales data by product line and year. To burst reports to Public Folders, you will use the data in a burst table and create a master-detail relationship.

Server: localhost  
 User/Password: brettontf/Education1!  
 Studio: Report Studio  
 Package: Go Data Warehouse (query)  
 Report Type: List  
 Folder: Sales and Marketing (query)  
 Namespace: Sales (query)

Note: It is not possible to burst a crosstab directly. In order to burst a crosstab, you need to create a master-detail relationship between the crosstab and a single dimensional query.


### Task 1. Create a crosstab report within a list report.

1. In the **Insertable Objects** pane, with the **Source** tab selected, expand **Employee by region**, and then double-click **Country** to add it to the list report.
2. In the **Insertable Objects** pane, click the **Toolbox** tab, and then drag a **Crosstab** to the end of the list report.

3. From the **Source** tab, add the following query items to the crosstab:
  - **Products → Product line** to **Rows**
  - **Time → Year** to **Columns**
  - **Sales fact → Revenue** to **Measures**

The result appears as shown below:

Country	Crosstab		
<Country>	Revenue	<#Year#>	<#Year#>
	<#Product line#>	<#1234#>	<#1234#>
	<#Product line#>	<#1234#>	<#1234#>

4. Click the **Country** column, and then on the toolbar, click **Section** .
5. Click the **Crosstab** list column title, and then set its **Box Type** property to **None**.
6. Sort **Product line** and **Year** in **Ascending** order.



7. From the toolbar **Run Report**.

The result appears as shown below:

Australia				
Revenue	2004	2005	2006	2007
Camping Equipment	332,986,338.06	402,757,573.17	500,382,422.83	352,910,329.97
Golf Equipment	153,553,850.98	168,006,427.07	230,110,270.55	174,740,819.29
Mountaineering Equipment		107,099,659.94	161,039,823.26	141,520,649.7
Outdoor Protection	36,165,521.07	25,008,574.08	10,349,175.84	4,471,025.26
Personal Accessories	391,647,093.61	456,323,355.9	594,009,408.42	443,693,449.85

Austria				
Revenue	2004	2005	2006	2007
Camping Equipment	332,986,338.06	402,757,573.17	500,382,422.83	352,910,329.97
Golf Equipment	153,553,850.98	168,006,427.07	230,110,270.55	174,740,819.29
Mountaineering Equipment		107,099,659.94	161,039,823.26	141,520,649.7
Outdoor Protection	36,165,521.07	25,008,574.08	10,349,175.84	4,471,025.26
Personal Accessories	391,647,093.61	456,323,355.9	594,009,408.42	443,693,449.85

Note that each of the countries has identical data. This is because there is no relationship between the list and the crosstab, so you see data for all countries. You will add query items to both queries and then create a master-detail relationship to link the queries, which will make the results more meaningful.

8. Close **IBM Cognos Viewer**.

## Task 2. Add query item to the queries.

1. Point to **Query Explorer**, and then click **Query1**.
2. In the **Insertable Objects** pane, ensure the **Source** tab is selected, and then add the following to the **Data Items** pane:

**Employee by region → Codes → Country code**

**Burst table by country → Recipients**

3. Point to **Query Explorer**, and then click **Query2**.
4. From the **Source** tab, expand **Employee by region**, **Codes**, and then drag **Country code** to the **Data Items** pane.

In order to create a master-detail relationship, you need to be able to link a data item from Query1 with a data item in Query2. You will create the master-detail relationship on Country code in the next task.

## Task 3. Create a master-detail relationship and set burst options.

1. Point to **Page Explorer**, and then click **Page1**.
2. Click any cell in the crosstab, and then from the **Data** menu, click **Master Detail Relationships**.
3. In the **Master Detail Relationships** dialog box, click **New Link**.

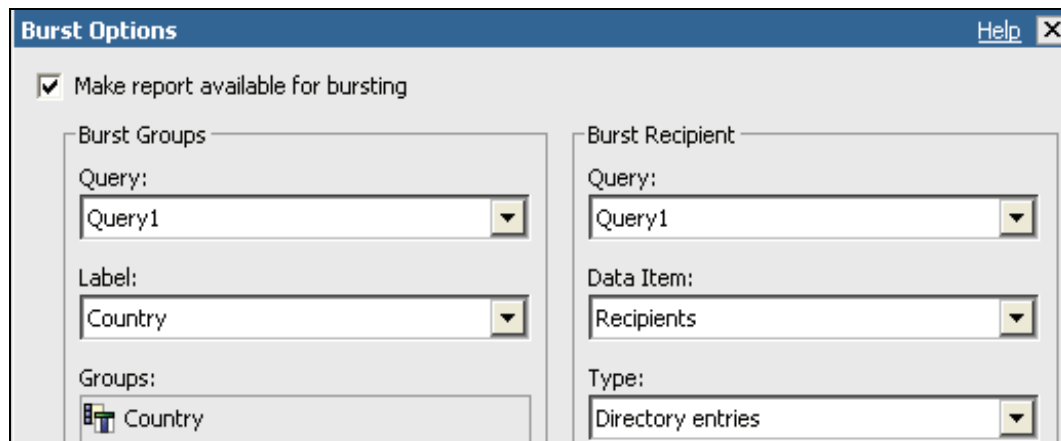
Report Studio creates a link between the Country data item in Query1 and the Product line data item in Query2. You need to link Country code in Query1 to Country Code in Query2. You will create the link on Country code instead of Country because Country code is indexed in the database and the queries will run faster.

---

Notice that there are two queries. The second query was created when you created the crosstab.

4. In the **Master: Query1** pane, click **Country code**, in **Detail: Query2** pane, click **Country code**, and then click **OK**.
5. From the **File** menu, click **Burst Options**.
6. Select the **Make report available for bursting** check box.
7. In the **Burst Groups** section, in the **Query** list, click **Query1**, and then in the **Label** list click **Country**.
8. Below **Groups**, click **Edit**, double-click **Country** to add it to the **Groups** folder and then click **OK**.
9. In the **Burst Recipient** section, in the **Query** list, select **Query1**, in the **Data Item**, list select **Recipients**, and then in the **Type** list, click **Directory entries**.

The result appears as shown below:



10. Click **OK**, and then save the report as **Demo 3\_Distribute Reports Through Bursting** in **Public Folders/B5159**.

You are ready to burst the report.

---

Query1 references the list with only one dimension.

## Task 4. Burst the report and view the results.

1. Close **Report Studio**, and maximize **IBM Cognos Connection**.
2. Navigate to **Public Folders/B5159**, and then click **Refresh**.
3. Beside **Demo 3\_Distribute Reports Through Bursting**, click **Run with options**, and then click **advanced options**.
4. Select **Run in the background**, select **Burst the report**, and then click **Run**.
5. Click **OK**, and then beside **Demo 3\_Distribute Reports Through Bursting**, click **View the output versions for this report**, if the icon is not yet visible, click **Refresh**.

The result appears as shown below:

Formats		Languages ▾
 HTML	Australia	English (United States)
 HTML	Italy	English (United States)
 HTML	United States	English (United States)

Three report output versions were created: one each for Australia, Italy, and United States. Because you are logged in as Frank Bretton, you can see all three output versions.

6. Click **Close**, click **Log Off**, and then click **Log on again**.
7. In the **User ID** box, type **sindenj**, in the **Password** box, type **Education1!**, and then click **OK**.
8. Click **IBM Cognos content**, navigate to **Public Folders/B5159**, and then beside **Demo 3\_Distribute Reports Through Bursting**, click **View the output versions for this report**.

Only one output version appears.

9. Click **HTML** .

The result appears as shown below:

<b>Australia</b>			
<b>Revenue</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>
Camping Equipment	9,752,591.01	19,175,957.2	13,007,383.98
Golf Equipment	4,094,643.54	8,482,438.67	6,502,474.22
Mountaineering Equipment	2,691,279.15	5,861,253.12	5,380,587.79
Outdoor Protection	600,956.77	367,636.38	171,750.41
Personal Accessories	2,131,381.68	5,081,517.25	4,261,477.85

This output version contains only Australian data, as you specified in the burst options.

10. Click **Return**, and then click **Close**.
11. Click **Log Off**, and then click **Log on again**.
12. In the **User ID** box, type **brettonf**, in the **Password** box, type **Education1!**, and then click **OK**.

Leave IBM Cognos Connection open for the next workshop.

## Results:

**Sales reps can view a crosstab report of the revenue generated in their country by product line and year. To accomplish this, you used the data in a burst table and a master-detail relationship to burst reports to Public Folders.**

## Summary

- At the end of this course, you should be able to:
  - distribute reports using bursting
  - create burst keys
  - identify report recipients and data items using burst tables
  - distribute reports using email and IBM Cognos Connection

**INTERACTION - Check Sticker:** Check each objective as it is summarized.

## Workshop 1: Create and Burst a Sales Report to Email and IBM Cognos Connection

Some sales reps at The Great Outdoors Company specialize in specific product lines, such as golfing equipment. As such, they want to be aware of how products within their area of expertise are selling.

Your assignment is to create a report that outlines sales of each product line, and then burst it to various sales reps through email. The sales reps would also like to access the reports in Public Folders, so you will burst to the Web as well.

Once you burst the report, you will see emails with the appropriate Product line reports for the following sales reps:

**Sales Rep**

John Sinden

Bart Scott

Alessandra Torta

**Product line**

Camping Equipment

Personal Accessories, Golf Equipment

Mountaineering Equipment

To accomplish this:

1. Log in as Frank Bretton, and then using the GO Data Warehouse package, Sales and Marketing (query) folder, Sales (query) namespace, create a report with Name (from Burst table by product line), Product line, Product type, Product and Revenue columns. Group on Name, Product line, and Product type, and show total Revenue. Create separate sections for each Name.
2. From the Burst table by product line query subject, add Recipients as a data item. Set burst options, labeling the report by Name, and then save the report as Wkshp1\_Distribute Reports Through Bursting in the B5159/Module 03\_Distribute Reports Through Bursting folder.
3. Log in as the administrator, burst the report and then view the report outputs in IBM Cognos Connection.
4. Open the resulting emails in Lotus iNotes.

Note:

The burst table includes the CAMID and Product line code for each user.

Email addresses for the users exist in the IBM Cognos BI properties for each user.

Frank Bretton does not have access to the email addresses in IBM Cognos BI. You will need to create the report as Frank Bretton, but burst the report as Admin.

For more detailed information outlined as tasks, see the Task Table section.

For the final results, see the Workshop Results section that follows the Task Table section.



## Workshop 1: Task Table





Task 1: Create a report that displays product line revenues.	
Where to Work	Hints
Report Studio, GO Data Warehouse package, Sales and Marketing (query) folder, Sales (query) namespace	<ul style="list-style-type: none"> <li>• Create a list report with Name (Burst table by product line), Product line, Product type, Product, and Revenue.</li> <li>• Group on Product Line, and Product type, Product.</li> <li>• Create a section with the Name column.</li> <li>• Summarize Revenue</li> </ul>
Query Explorer	<ul style="list-style-type: none"> <li>• Burst table by product line, Recipients</li> </ul>
Burst Options dialog box	<ul style="list-style-type: none"> <li>• Burst Groups Query: Query 1 Label: Name Groups: Product line</li> <li>• Burst Recipient Query: Query 1 Data Item: Recipients Type: Directory entries</li> <li>• Save the report as Wkshp1_Distribute Reports Through Bursting.</li> </ul>

<b>Task 2: Burst the report and view the results.</b>	
<b>Where to Work</b>	<b>Hints</b>
IBM Cognos Connection	<ul style="list-style-type: none"> <li>• User ID: admin, Password: Education1!.</li> </ul>
Public Folders	<ul style="list-style-type: none"> <li>• Run with options, advanced options.</li> <li>• Select the Burst the report, and Send the report by email check boxes.</li> <li>• View the output versions for this report, minimize IBM Cognos Connection.</li> </ul>
Lotus iNotes	<ul style="list-style-type: none"> <li>• Close Lotus iNotes, close IBM Cognos Connection, and close Report Studio.</li> </ul>

If you need more information to complete a task, see the Step-by-Step instructions at the end of the Workshop.

## Workshop 1: Results

After bursting the report, the View report output versions page appears as shown below:

Formats		Languages ▾
 HTML	Alessandra Torta	English (United States)
 HTML	Bart Scott	English (United States)
 HTML	Bart Scott	English (United States)
 HTML	John Sinden	English (United States)

After bursting the report, the email to John Sinden appears as shown below:

John Sinden			
Product line	Product type	Product	Revenue
Camping Equipment	Cooking Gear	TrailChef Canteen	11,333,518.65
		TrailChef Cook Set	41,184,274.9
		TrailChef Cup	5,702,502.7
		TrailChef Deluxe Cook Set	53,195,154.45
		TrailChef Double Flame	34,311,174.84
		TrailChef Kettle	25,368,496.06
		TrailChef Kitchen Kit	19,535,825.83
		TrailChef Single Flame	43,189,819.56
		TrailChef Utensils	15,958,075.73
		TrailChef Water Bag	23,057,141.46
Cooking Gear - Total			272,835,984.18

After bursting the report, the emails to Bart Scott appears as shown below:

Bart Scott			
Product line	Product type	Product	Revenue
Personal Accessories	Binoculars	Opera Vision	8,785,590
		Ranger Vision	41,381,037.1
		Seeker 35	29,445,906.96
		Seeker 50	20,202,373.3
		Seeker Extreme	18,784,510.94
		Seeker Mini	12,235,234.9
	Binoculars - Total		130,834,653.2

Bart Scott			
Product line	Product type	Product	Revenue
Golf Equipment	Golf Accessories	Course Pro Gloves	8,751,159.08
		Course Pro Golf and Tee Set	9,033,712.92
		Course Pro Golf Bag	21,809,899.02
		Course Pro Umbrella	11,919,572.86
	Golf Accessories - Total		51,514,343.88
	Irons	Hailstorm Steel Irons	58,805,377.39
		Hailstorm Titanium Irons	94,940,604.6
		Lady Hailstorm Steel Irons	38,955,005.24
		Lady Hailstorm Titanium Irons	62,113,350.76
	Irons - Total		254,814,337.99

After bursting the report, the email to Alessandra Torta appears as shown below:

Alessandra Torta			
Product line	Product type	Product	Revenue
Mountaineering Equipment	Climbing Accessories	Firefly Charger	15,642,633.98
		Firefly Climbing Lamp	7,858,801.68
		Firefly Rechargeable Battery	10,223,848.56
		Granite Belay	17,239,369
		Granite Carabiner	11,995,579.28
		Granite Chalk Bag	3,609,271.08
		Granite Pulley	14,527,078.9
Climbing Accessories - Total			81,096,582.48

## Workshop 1: Step-by-Step Instructions

Server: localhost  
 User/Password: brettonf/Education1!  
 Studio: Report Studio  
 Package: Go Data Warehouse (query)  
 Report Type: List  
 Folder: Sales and Marketing (query)  
 Namespace: Sales (query)

### Task 1. Create a report that displays product line revenues.

1. In the **Insertable Objects** pane, from the **Source** tab, add the following query items:
  - **Burst table by product line** → **Name**
  - **Products** → **Product line**, **Product type**, **Product**
  - **Sales fact** → **Revenue**
2. Ctrl+click the **Name**, **Product line**, and **Product type** columns, and then on the toolbar, click **Group/Ungroup**.
3. Click the **Revenue** column, and on the toolbar, click **Summarize**, and then click **Total**.
4. Click the **Name** column, and then click **Section**.
5. Point to **Query Explorer**, and then click **Query1**.
6. From the **Burst table by Product line** query subject, drag **Recipients** to the **Data Items** pane.

- From the **File** menu, click **Burst Options**, and then set the options as shown below:

**Burst Options** Help X

☒ Make report available for bursting

**Burst Groups**

Query: Query1

Label: Name

Groups: Product line

**Burst Recipient**

Query: Query1

Data Item: Recipients

Type: Directory entries

Master detail relationships: ...

OK Cancel

- Click **OK**, and then save the report as **Wkshp1\_Distribute Reports Through Bursting** in **Public Folders/B5159**.
- Close **Report Studio**.

## **Task 2. Burst the report and view the results.**

- Click **Log Off**, and then click **Log on again**.
- On the **Log on** screen, in the **User ID** box type **admin**, and in the **Password** box type **Education1!**, and then click **OK**.
- Click **IBM Cognos content**, and then navigate to **Public Folders/B5159**.
- Beside **Wkshp1\_Distribute Reports Through Bursting**, click **Run with options**, and then click **advanced options**.
- Click **Run in the background**.

6. Select **Burst the report**, and then select **Send the report by email**.
7. Click **Run** and then click **OK**.
8. Beside **Wkshp1\_Distribute Reports Through Bursting**, click **View the output versions for this report**.

If the icon is not yet visible, click **Refresh**.

Four output versions were created for this report: one each for John Sinden (Camping Equipment), Alessandra Torta (Mountaineering Equipment), Bart Scott (Golf Equipment), and Bart Scott (Personal Accessories).

9. Open the **Lotus iNotes IE tab**, and type in the following address:  
**<http://localhost/mail/jsinden.nsf>**

The reports specific for John Sinden are seen.

10. Open an IE tab for Bart Scott and Alessandra Torta:

Bart Scott: **<http://localhost/mail/bscott.nsf>**

Alessandra Torta: **<http://localhost/mail/atorta.nsf>**

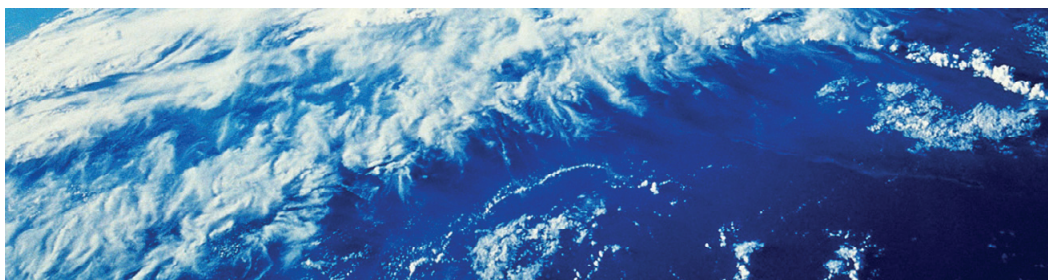
11. Close all open windows.





# Create Advanced Dynamic Reports

IBM Cognos BI



Business Analytics

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# Objectives

- At the end of this course, you should be able to:
  - filter reports on session parameter values
  - navigate a briefing book using a table of contents
  - create dynamic headers and titles that reflect report data
  - let users navigate to specific locations in reports
  - create a customer invoice report

If you intend to teach this module, students should be familiar with:

- IBM Cognos Connection
- Report Studio
- Filters
- Prompts
- The Cognos Query Model
- Locking and unlocking table cells
- Adding toolbox objects to a report layout

Suggested modules to reference:

- Introduction to the Reporting Application
- Create List Reports
- Create Crosstab Reports
- Focus Reports Using Filters
- Focus Reports Using Prompts
- Design Effective Reports
- Create Query Models

**INTERACTION - Star Sticker:** Star each objective as it is introduced.

## Filter Reports Using Query Macros

- A query macro is an expression that is embedded directly in the SQL of a query and dynamically alters the SQL at runtime.

**[Sales rep] = #sq(\$account.defaultName)#**



**This macro gets the name of the user currently logged into IBM Cognos BI to filter the data.**

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Query macros can be included anywhere in an SQL statement as long as the resulting expression is valid.

You can add macros to report objects that pass expressions to the query model, such as filters and calculated query items.

Query macros can be used both in native and Cognos SQL.

---

Session parameters are made available to you through your authentication source, for example NTLM, LDAP, or Siteminder. Depending on your authentication source, different session parameters are available.

In this example, you create a filter that takes the name of the person who has logged into IBM Cognos BI, and displays only that person's results to them. The same result as in this example could be achieved through bursting.

While it is better practice to place macros into the Framework Manager model, they are useful in Report Studio especially where the Framework Manager project cannot be modified or the development-time model is not available.

## Demo 1: Control Report Output Using a Query Macro

### Purpose:

Management wants to see a report that outlines the total revenue produced by all product lines for each sales rep. They would like sales representatives in the field to be able to generate this report as needed to view their latest figures, but each rep should be able to see only their own data. You will create a report that includes revenue figures for every sales rep but filters on the current user's identity and displays only data appropriate to them.

Server: localhost  
User/Password: brettonf/Education1!  
Studio: Report Studio  
Package: Go Data Warehouse (query)  
Report Type: List  
Folder: Sales and Marketing (query)  
Namespace: Sales (query)

### Task 1. Create a report with Revenue by Sales rep.

1. In Report Studio, click **File, Open**, and navigate to **Public Folders\B5159\04\_Create Advanced Dynamic Reports\Demo 1 Start**, and then click **Open**.

2. Run the report.

The results appear as follows:

Employee name	Product line	Product type	Revenue
Aaltje Hansen	Personal Accessories	Binoculars	1,346,151.9
		Eyewear	12,278,798.75
		Knives	1,835,433.2
		Navigation	1,119,025
		Watches	8,419,443.6
	Personal Accessories - Total		24,998,852.45
Aaltje Hansen - Total			24,998,852.45
Abram Ruiz	Personal Accessories	Binoculars	1,009,800.8
		Eyewear	29,843,706.34
		Knives	56,803.4
		Navigation	3,429,714
		Watches	15,999,814.4
	Personal Accessories - Total		50,339,838.94
Abram Ruiz - Total			50,339,838.94

This report displays revenue figures for every available employee who is a sales rep. You would like to filter the Employee name to include only data for the user that is currently logged into IBM Cognos.

3. Close **IBM Cognos Viewer**.

## Task 2. Create a filter that uses a query macro.

1. Click **Filters**, **Edit Filters**, click **Add**.
2. Click **Advanced**, and then **OK**.
3. From the **Data Items** tab, drag **Employee name**, to the **Expression Definition** pane, and then type **=#sq(\$account.defaultName)#**.

The pound symbols (#) enclose the query macro expression. The variable `account.defaultName` retrieves the `defaultName` session parameter from the current IBM Cognos session. The `sq` expression encloses the variable in single quotes.

4. Validate to ensure the expression had no errors, and then click **OK** twice to close each dialog box.
5. From the toolbar click **Run Report**.

The report includes column headers but displays no data. You are logged in as a report author (Frank Bretton), not as a sales rep, so you do not see any corresponding sales data. You need to log in to IBM Cognos using one of the sales rep accounts.

6. Close **IBM Cognos Viewer**, and then save the report in the **Public Folders/B5159** folder as **Demo 1\_Create Advanced Dynamic Reports**.
7. Close **Report Studio**, on the **Welcome** page in the top-right corner, click **Log Off**, and then click **Log on again**.
8. In the **User ID** box, type **smythed** in the **Password** box, type **Education1!** and then click **OK**.
9. On the **Welcome** page, click **IBM Cognos content**, and then click the **B5159** folder.

---

Task 2, step 3. The expression is case sensitive.

Report Studio does not have access to session parameters. The Framework Manager modeler can provide a list of these parameters.

**INTERACTION - Toolbar Emoticons > Raise Hand:** Task 2, Step 4: Why does the report return No Data?

10. Click **Demo 1\_Create Advanced Dynamic Reports**, to run the report.

A section of the results appear as follows:

Employee name	Product line	Product type	Revenue
Dave Smythe	Camping Equipment	Cooking Gear	1,742,564.12
		Lanterns	820,939.9
		Packs	2,463,562.46
		Sleeping Bags	1,209,711.63
		Tents	4,745,739.82
	Camping Equipment - Total		10,982,517.93
	Golf Equipment	Golf Accessories	147,287
		Irons	1,007,968.06
		Putters	251,067.17
		Woods	1,212,482.5
	Golf Equipment - Total		2,618,804.73
	Mountaineering Equipment	Climbing Accessories	145,079.14
		Rope	392,523.92
		Safety	241,430.95
		Tools	485,939.37
	Mountaineering Equipment - Total		1,264,973.38

The report now only displays sales data for Dave Smythe.

11. Click **Log Off**.

Since the report is designed to display data for only one sales rep at a time, there is no need to include the Employee name column. You can now log back in to IBM Cognos BI as the report author and perform this and other formatting functions.





### Task 3. Format the Report.

1. Click **Log on again**, and then log on using **brettonf/Education1!**.
2. On the **Welcome** page, click **Author advanced reports**, click **GO Data Warehouse (query)** package, then click **Open existing**.
3. Navigate to **Public Folders/B5159**, and then open **Demo 1\_ Create Advanced Dynamic Reports**.
4. Click the **Employee name** column, and then click **Cut**.
5. Click the **Employee name** summary row (not the text item), and then click **Cut**.
6. Click the list **Container Selector** to select the entire list.
7. From the **Properties** pane, double-click **Properties** from the **Data** section, and then select the **Employee name** check box to make Employee name a property of the query, and then click **OK**.
8. Double-click the title text in the page header, type **Sales Information for**, press the space bar, and then click **OK**.
9. Click any column in the list, in the **Properties** pane, click **Select Ancestor**, and then click **Page**.
10. In the **Properties** pane, click the **Query** cell, and then in the list, click **Query1**.
11. In the **Insertable Objects** pane, click the **Toolbox** tab, and then drag a **Layout Calculation** object to the end of the report title.
12. Drag **Employee name** to the **Expression Definition** pane.  
The expression appears as **[Query1].[Employee name]**.

---

Task 3, step 9. This is an alternate way of creating a dynamic report title. You could have also used the method you will see in Demo 2 of adding a calculated data item to the query that generates the desired text, and then changing the Report Expression property of the title to this query item.

13. Click **Validate**, and then after the expression is validated without any errors, click **OK**.
14. Click the report title, and then on the toolbar, click **Pick up Style** .
15. Click the **<% [Query1].[Employee name] %>** calculation in the title, and then on the toolbar, click **Apply Style** .
16. Save the report, and then close **Report Studio**.

#### **Task 4. View the report for various sales reps.**

1. On the **Welcome** page, click **Log Off**, and then click **Log on again**.
2. In the **User ID** box, type **smythed**, in the **Password** box, type **Education1!**, and then click **OK**.
3. On the **Welcome** page, click **IBM Cognos content**, and then click the **B5159** folder.
4. Click **Demo 1\_Create Advanced Dynamic Reports**, to run the report.

The results appear as follows:

<b>Sales Information for Dave Smythe</b>		
Product line	Product type	Revenue
Camping Equipment	Cooking Gear	1,742,564.12
	Lanterns	820,939.9
	Packs	2,463,562.46
	Sleeping Bags	1,209,711.63
	Tents	4,745,739.82
Golf Equipment	Golf Accessories	147,287
	Irons	1,007,968.06
	Putters	251,067.17

5. Click **Log Off**, and then click **Log on again**.

6. Login as **scottb** using the password **Education1!** and run the report again.

<b>Sales Information for Bart Scott</b>		
Product line	Product type	Revenue
Camping Equipment	Cooking Gear	3,096,705.62
	Lanterns	1,597,289.18
	Packs	4,521,701.21
	Sleeping Bags	4,412,665.17
	Tents	6,078,370.27
Golf Equipment	Golf Accessories	753,380.1
	Irons	3,918,458.02
	Putters	1,606,103.07
	Woods	3,625,828.41

The query changes each time the report is run by a different user.

7. Click **Log Off**, and then click **Log on again**.
8. In the **User ID** box, type **brettonf** in the **Password** box, type **Education1!** and then click **OK**.

Leave IBM Cognos Connection open for the next demo.

### Results:

You created a report that outlines the total revenue produced by all product lines for each sales rep. You then filtered this report using a query macro to display sales data for the user currently logged into IBM Cognos BI. After viewing the report while logged in as a particular sales rep, you formatted the report layout to include the name of the sales rep in the header. Finally, you examined this new report from the perspective of two different sales reps.

## Use Table of Contents to Navigate Reports in a Report Book

- You can create a table of contents to quickly navigate reports with:

- sectioned items
- grouped items
- multiple pages

**Dynamic links  
for navigation**

**Different levels  
of numbering**

<u>Table of Contents</u>	
<b>1 Americas Quarterly Sales.....</b>	<b>3</b>
<b>2 Europe Quarterly Sales.....</b>	<b>6</b>
<b>2.1 Northern Europe.....</b>	<b>6</b>
<b>2.2 Central Europe.....</b>	<b>8</b>
<b>2.3 Southern Europe.....</b>	<b>10</b>
<b>3 Asia Pacific.....</b>	<b>13</b>

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## Demo 2: Create a Table of Contents for a Report Book

### Purpose:

You have been asked to create a report book that contains the following reports: quantity by product line and order method, quantity by product line and country, and quantity by product line and retailer type. This report needs to be distributed in PDF format. You will create a table of contents to let users navigate quickly to the desired report and information within the report.

Server: localhost  
User/Password: bretttonf/Education1!  
Studio: Report Studio  
Package: Go Data Warehouse (query)  
Report Type: List  
Folder: Sales and Marketing (query)  
Namespace: Sales (query)

### Task 1. Create three list report pages.

You will copy the first list report page to two other pages so that they will have a header, footer and list already on them. You will then add data and a name to each report page to represent what is on the report.

1. Point to **Page Explorer**, and then click **Report pages**.
2. Ctrl+click **Page1** and drag it below **Page1** to create a copy.
3. Repeat step 2 so that you have three pages.

4. Click on each page, and then in the **Properties** pane, change the **Name** property for each page as follows:
  - **Page 1 → Quantity By Product Line and Order Method**
  - **Page 2 → Quantity By Product Line and Country**
  - **Page 3 → Quantity By Product Line and Retailer Type**
5. Double-click **Quantity By Product Line and Order Method** page, and then in the report header, double-click the title and type **Quantity By Product Line and Order Method**
6. In the **Insertable Objects** pane, click the **Source** tab, and then drag the following query items to the list:
  - **Products → Product line**
  - **Order method → Order method type**
  - **Sales fact → Quantity**
7. Group on **Product line** column.
8. Point to **Page Explorer**, and then click the **Quantity By Product Line and Country** page, and then in the report header, double-click the title and type **Quantity By Product Line and Country**
9. In the **Insertable Objects** pane, drag the following query items to the list:
  - **Products → Product line** from the **Data Items** tab
  - **Retailers → Retailer country** from the **Source** tab
  - **Sales fact → Quantity** from the **Data Items** tab
10. Group on **Product line** column.
11. Point to **Page Explorer**, and then click the **Quantity By Product Line and Retailer Type** page, and then double-click the title and type **Quantity By Product Line and Retailer Type**.

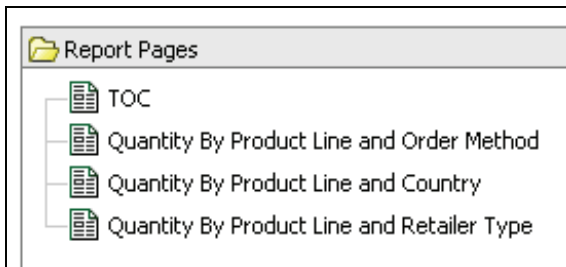
12. In the **Insertable Objects** pane, drag the following query items to the list:
  - **Products** → **Product line** from the **Data Items** tab
  - **Retailer type** → **Retailer type** from the **Source** tab
  - **Sales fact** → **Quantity** from the **Data Items** tab
13. Group on **Product line** column.

## Task 2. Create a Table of Contents page.

You will create a page for the table of contents by copying one of the existing pages, renaming the page and title, and deleting the list object. You will then create a table of contents on the page.

1. Point to **Page Explorer**, and then click **Report pages**.
2. Ctrl+click **Quantity By Product Line and Order Method** and drag it to the top of the list to create a copy.
3. In the **Properties** pane, change the **Name** property to **TOC**.

The pages should appear as follows:

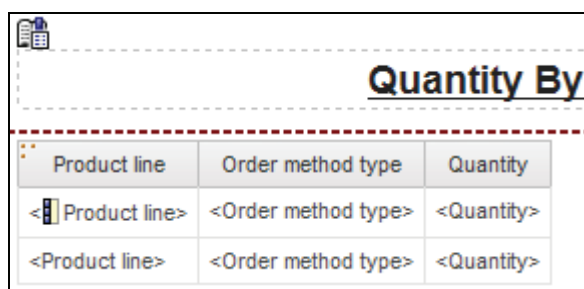


4. Point to **Page Explorer** and then click **TOC**.
5. Click the list Container Selector, and then click **Delete**.
6. Double-click the title, and then type **Table of Contents**
7. On the **Toolbox** tab, drag the **Table of Contents** object to the work area.

### Task 3. Add the Table of Contents Entry to the report pages.

1. Point to **Page Explorer**, and then click the **Quantity By Product Line and Order Method** page.
2. From the **Toolbox** tab, drag a **Table of Contents Entry** to the top left corner of the page.

The result appears as shown below:



Quantity By		
Product line	Order method type	Quantity
<Product line>	<Order method type>	<Quantity>
<Product line>	<Order method type>	<Quantity>

3. Repeat steps 1 and 2 to for **Quantity By Product Line and Country** and **Quantity By Product Line and Retailer Type** pages.
4. Point to **Page Explorer**, and then click the **TOC** page.

The TOC itself is constructed of TOCs entries each of which is a 3 cell table constructed with text, dashed lines and page numbers.

You have the choice of typing the name of the page, or you can change the text to a report expression to include the PageName. If you type in the page name, you will be forced to maintain the page name manually if the pages are re-ordered. If you use PageName, then the page name will be update dynamically even if you re-order the page.

You will use the PageName method in the next few steps.



5. Click the first text item, and then in the **Properties** pane, change the **Source Type** property from **Text** to **Report Expression**.
6. Click the **Report Expression** property, and then click the **ellipsis**.
7. Click the **Functions** tab, expand **Report functions**, double-click **PageName**, and then click **OK**.
8. Right-click and copy the **<%PageName()%>** text that you have just created, and then paste it in all the rows from the table.

Hint: You will have to delete the text item **Double click to edit text**.

9. From the **Run** menu, click **Run Report - PDF**.

The results appear as shown below:

<u><b>Table of Contents</b></u>	
Quantity By Product Line and Order Method .....	2
Quantity By Product Line and Country .....	3
Quantity By Product Line and Retailer Type .....	6

Three things to note:

- The PageName now appears in the Table of Contents. This is the page name that you see in Page Explorer.
- The page numbers reflect the actual starting page of the item so as more or less data appears in the report the page numbers will always be correct.
- When you move the mouse cursor over each item, it changes shape to indicate a live link. You can click the link to go to that section of the report.

10. Close **IBM Cognos Viewer**.

Task 3, Step 10 Table of Contents works only for reports produced in PDF and non-interactive HTML format (when viewing saved report outputs).

**INTERACTION - Toolbar Emoticons > Raise Hand:** Ask participants why this feature only works for PDF and saved HTML outputs.

## Task 4. Add numbering to the Table of Contents.

You will format the Table of Contents to have numbers for each entry.

1. On the **TOC** page, from the **Toolbox** tab, drag a **Layout Calculation** object into the **TOC** before the first `<%PageName()%>`, as shown below:



2. In the **Expression Definition** pane, create the following expression:

**TOCHeadingCount(1)**

Hint: **TOCHeadingCount** is found on the **Functions** tab, in the **Report Functions** folder.

The value 1 represents the Heading level property found on a table of contents entry. When you create the table of contents entry, you can choose which level the entry will be accounted for in the table of contents.

3. Click **OK**.
4. Right-click the **Layout Calculation** that you just created, and click **Copy**.
5. Right-click the **PageName** items below, and click **Paste**.
6. Ctrl+click the **PageName** items, and then set the **Padding** property to left 5 pixels.

Task 4, Step 2. The functionality of the Heading level property will be more clearly understood after a second level of numbering is added to the TOC.

- From the **Run** menu, click **Run Report - PDF**.

The result appears as shown below:

<u>Table of Contents</u>	
1 Quantity By Product Line and Order Method .....	2
2 Quantity By Product Line and Country .....	3
3 Quantity By Product Line and Retailer Type .....	6


The TOCHeadingCount() function returns the TOC1 entry count. Since you added three TOC entries, each belonging to TableofContents1, there are three entries that display on this page.

- On the right, click **3**.

You are brought to the Quantity By Product Line and Country report on page 3, as indicated in the Table of Contents.

- Close **IBM Cognos Viewer**.

## **Task 5. Add data driven TOC entries to the Table of Contents page.**

- Point to **Page Explorer**, and then click **Quantity By Product Line and Country** page.
- Click **Lock/Unlock**  to unlock the report.
- From the **Toolbox** tab, drag a **Table of Contents Entry** object into the list before **<Product line>**.

The results appear as shown below:

Product line	Retailer country	Quantity
 <Product line>	<Retailer country>	<Quantity>
 <Product line>	<Retailer country>	<Quantity>

4. On the toolbar, click **Lock/Unlock** to lock the report.
5. From the **Run** menu, click **Run Report - PDF**.

The Table of Contents now displays the data values that are in the report.

<b><u>Table Of Contents</u></b>	
1 Quantity by Product Line and Order Method .....	2
2 Quantity by Product Line and Country .....	3
Camping Equipment .....	3
Golf Equipment .....	3
Mountaineering Equipment .....	3
Outdoor Protection .....	4
Personal Accessories .....	4
8 Quantity by Product Line and Retailer Type .....	6

You will add a second level of numbering to the table of contents and indent the Product line entries.

6. Close **IBM Cognos Viewer**.

## **Task 6. Add a second level of numbering and indent the Product line on the Table of Contents page.**

1. On the toolbar, click **Lock/Unlock**, and then click the **Table of Contents Entry** beside **Product line**.
2. In the **Properties** pane, change the **Heading Level** property to **2**.
3. On the toolbar, click **Lock/Unlock**.
4. Point to **Page Explorer**, and then click the **TOC** page.
5. Insert a **Layout Calculation** in front of the **<Product line>** entry, and then in the **Expression Definition** pane, type **TOCHeadingCount(2)** and click **OK**.
6. Insert a **Text Item** in front of the layout calculation, and then type a period (.)

7. Insert a **Layout Calculation** in front of the text item you just added, and then in the **Expression Definition** pane, type **TOCHHeadingCount(1)** and click **OK**.
8. With **<%TOCHHeadingCount(1)%>** selected, set the **Padding** property to left **10 pixels**.
9. Click **<Product line>** and set left padding to **5 pixels**.
10. From the **Run** menu, click the **Run Report - PDF**.

The result appears as shown below:

<u><b>Table of Contents</b></u>	
1 Quantity By Product Line and Order Method .....	2
2 Quantity By Product Line and Country .....	3
2.1 Camping Equipment .....	3
2.2 Golf Equipment .....	3
2.3 Mountaineering Equipment .....	4
2.4 Outdoor Protection .....	4
2.5 Personal Accessories .....	5
3 Quantity By Product Line and Retailer Type .....	6

The second level of numbering appears and the entries are indented.

11. Close **IBM Cognos Viewer**.

Leave Report Studio open for the next demo.

## **Results:**

**You created a report book with a table of contents that lets users quickly navigate to the desired report. You added numbering and data driven table of content entries that used a second level of numbering.**

## Create Dynamic Data Items and Titles

- Use calculated data items to:
  - create dynamic column titles and report titles
  - display user prompt selections

### Dynamic titles set by a prompt

↓

Summary of 2006 Product Sales and Growth		
Product	2006 Revenue	Growth
Aloe Relief	\$101,812.41	-43.77%
Astro Pilot	\$13,072,475.00	139.40%
Auto Pilot	\$3,388,230.00	*** no prior data ***
Bear Edge	\$3,960,860.01	46.57%
Bear Survival Edge	\$3,320,876.50	59.34%

Dynamic calculation

Cognos.  
software

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To create a dynamic column header:

1. Create a calculated data item in the query that will display the title you want.
2. Change the column title Source type property to Data item value.
3. Change the column title Data item value property to the calculated item.

For report titles, follow the same steps, but set the Source type property to Report Expression (not Data Item), and set the value of the report expression to the calculated item.

By default, a List column title displays the name (label) of the data item it is associated with. In the Properties pane, you can change the Content property of the List Column Title to Value, and the column title will display the first data value retrieved by the data item. In crosstabs, column and row titles display the data values returned by the data item associated with it. For both lists and crosstabs, you can associate the column or row title with a different data item (and also change the content to Label or Value) to display different information in the title. You can associate the title with any data item in the query.

## Demo 3: Create a Dynamic Revenue Growth Report

### Purpose:

Management wants to see a report that outlines the total revenue generated for each product in any given year. The report should also show the percentage growth in revenue between the year of interest and the prior year. To do this, you will use calculated data items to retrieve and derive data based on the year chosen by the user, and to name the column headers and report title accordingly.

Server: localhost  
User/Password: bretttonf/Education1!  
Studio: Report Studio  
Package: Go Data Warehouse (query)  
Report Type: List  
Folder: Sales and Marketing (query)  
Namespace: Sales (query)

### Task 1. Create a query.

You will create a query containing the date you require and a parameter users can use to select an order year at runtime.

1. Point to **Query Explorer**, and then click **Query1**.
2. In the **Insertable Objects** pane, expand the **Products** query subject, and then drag the **Product** query item to the **Data Items** pane.

You will add a parameter that users can use to select an order year for which to view data.

3. Click the **Toolbox** tab, and then drag a **Data Item** to the **Data Items** pane.

4. In the **Expression Definition** pane, type **?Order year?** then click **Validate**, to validate the expression, then click **OK**.
5. In the **Properties** pane, change the **Name** property to **Order year\_Prompt** and then press **Enter**.

You will add a data item that can be used to return only data for the year users select in the prompt.

6. From the **Toolbox** pane, drag a **Data Item** to the **Data Items** pane.
7. In the **Expression Definition** pane, type **if (**, in the Available Components pane, expand the **Time** query subject.
8. Drag the **Year** query item and create the expression as follows:

**if ([Sales (query)].[Time].[Year]=[Order year\_Prompt]) then ([Sales (query)].[Sales fact].[Revenue]) else (0)**

Hint: Select **Order year\_Prompt** from the **Data Items** tab and **Revenue** from the **Source** tab.

9. Click **Validate**, and then click **OK**.

This data item will retrieve every record from the Time dimension query subject and examine the Year of each one. If the year is equal to that specified in the prompt, then the Revenue data is retrieved and aggregated, otherwise the number 0 is added to the running Revenue total.

10. In the **Properties** pane, change the **Name** property to **Y2 Revenue**, for year revenue, and then press **Enter**.

**INTERACTION - Toolbar Emoticons > Raise Hand:** Ask the participants why, in Task 1, Step 4, you are not being prompted

A: Because the prompt is not part of the report layout



## Task 2. Add additional data to the query.

You will add a second data item to retrieve data for the previous year's revenue.

1. In the **Data items** column, double-click the **Y2 Revenue** data item, copy the expression in the **Expression Definition** pane, and then click **OK**.
2. From the **Toolbox** tab of the **Insertable Objects** pane, drag a **Data Item** object to the **Data Items** pane, in the **Expression Definition** box, right-click to paste the expression.
3. At the end of **Order year\_Prompt**, type **-1**.

The expression appears as shown below:

**if ([Sales (query)].[Time].[Year]=[Order year\_Prompt]-1) then ([Sales (query)].[Sales fact].[Revenue])else (0)**

This expression is the same as the one you created earlier except it will retrieve revenue for the previous order year.

4. Click **Validate** to ensure that there are no errors, and then click **OK**.
5. In the **Properties** pane, change the **Name** property to **Y1 Revenue**, for prior year revenue, and then press **Enter**.

## Task 3. Add calculated items and filter to the query.

You will create a calculated item for the percentage growth over the previous year.

1. From the **Insertable Objects** pane, drag a **Data Item** object to the **Data Items** pane.
2. In the **Expression Definition** pane, create the expression as follows:

**([Y2 Revenue]-[Y1 Revenue])/[Y1 Revenue]**

Hint: Use the **Data Items** tab from the **Available Components** pane.

This data item uses the aggregated Revenue totals calculated by the query to determine the percentage change in total revenue between the year specified in the prompt and the previous year.

3. Click **Validate**, and then click **OK**.
4. In the **Properties** pane, change the **Name** property to **Growth**, and then press **Enter**.
5. From the **Source** tab, drag **Time → Year** to the **Detail Filters** pane, and then create the following expression:  
**[Sales (query)].[Time].[Year] between ?Order year?-1 and ?Order year?**  
 This filter is not necessary for this report to function properly, but it makes the query more efficient. By having the filter, the IF-THEN-ELSE statements on Y1 Revenue and Y2 Revenue will not have to evaluate all four years in the database. Instead, it will only have to evaluate one year.
6. Click **Validate**, and then click **OK**.

#### **Task 4. Build the report layout.**

1. Point to **Page Explorer**, and then click **Page1**.
2. In the **Insertable Objects** pane, click the **Data Items** tab.
3. Ctrl+click **Product**, **Y2 Revenue**, and **Growth**, and then drag them to the list.
4. In the list, click the **Product** column, click **Sort**, and then click **Ascending**.
5. Click the **Growth** list column body, in the **Properties** pane under **Data**, double-click the **Data Format** cell.

The Data Format dialog box appears.

6. In the **Format type** list, click **Percent**, under **Properties**, set **No. of Decimal Places** to **2**.
7. Click the box beside **Missing Value Characters**, type **\*\*\* no prior data \*\*\*** and then click **OK**.

8. Click the **Y2 Revenue** column, in the **Properties** pane under **Data**, double-click the **Data Format** cell.
9. In the **Format type** list, click **Currency**, and then in the **Properties** pane, set **Currency** to **\$ (USD) - United States of America, dollar**.
10. Click **OK**, and then from the menu run the report.
11. In the **Year** box, type **2006**, and then click **OK**.

The results appear as follows:

Product	Y2 Revenue	Growth
Aloe Relief	\$101,812.41	-43.77%
Astro Pilot	\$13,072,475.00	139.40%
Auto Pilot	\$3,388,230.00	*** no prior data ***
Bear Edge	\$3,960,860.01	46.57%
Bear Survival Edge	\$3,320,876.50	59.34%
Bella	\$8,538,320.00	45.52%
Blue Steel Max Putter	\$10,660,306.80	7.32%
Blue Steel Putter	\$5,748,176.04	7.55%
BugShield Extreme	\$2,505,862.24	-54.53%

Since the report displays data for only the year chosen in the prompt, you will add a dynamic column header and report title that will always reflect the data being displayed.

12. Close **IBM Cognos Viewer**.

## Task 5. Create a dynamic column header.

1. Click **Y2 Revenue** column title, and then in the **Properties** pane, change **Source type** to **Report Expression**.
2. Double-click the box beside **Report Expression**, and type the following:  
**ParamDisplayValue('Order year')**
3. Click **OK**.
4. On the toolbar, click **Unlock (currently locked)**.
5. Drag a **Text item** to the end of the column title and type **<space>Revenue** and then click **OK**.
6. On the toolbar, click **Lock (currently unlocked)**.
7. Run the report, in the **Year** box, type **2006**, and then click **OK**.

The report appears as shown below:

Product	2006 Revenue	Growth
Aloe Relief	\$101,812.41	-43.77%
Astro Pilot	\$13,072,475.00	139.40%
Auto Pilot	\$3,388,230.00	*** no prior data ***
Bear Edge	\$3,960,860.01	46.57%
Bear Survival Edge	\$3,320,876.50	59.34%
Bella	\$8,538,320.00	45.52%

The title for the revenue column now reflects the data in the report. You can now create a new title for the report that also references the selected order year.

8. Close **IBM Cognos Viewer**.

## Task 6. Create a dynamic report title.

1. Double-click the report title text, type **Summary of** press the spacebar, and then click **OK**.
2. From the **Toolbox** tab of the **Insertable Objects** pane, drag a **Layout Calculation** object to the end of the report title.
3. In the **Available Components** pane, click the **Parameters** tab, drag the **Order year** parameter to the **Expression Definition** pane.

The expression appears as shown below:

**ParamDisplayValue('Order year')**

4. Click **Validate**, type **2006**, and then click **OK**.
5. From the **Insertable Objects** pane, drag a **Text Item** object to the end of the report title, and then press the spacebar.
6. Type **Product Sales and Growth** and then click **OK**.
7. Click **Summary of**, and then on the toolbar, click **Pick up style**.
8. Ctrl+click the layout calculation and **Product Sales and Growth**, and then on the toolbar, click **Apply style**.
9. Click to the left of the title text and align left

10. Run the report, and when prompted type **2006**.

The report appears as shown below.

Now both the revenue column header and the report title reflect the data in the report, based on the year specified in the prompt.

<b>Summary of 2006 Product Sales and Growth</b>		
Product	2006 Revenue	Growth
Aloe Relief	\$101,812.41	-43.77%
Astro Pilot	\$13,072,475.00	139.40%
Auto Pilot	\$3,388,230.00	*** no prior data ***
Bear Edge	\$3,960,860.01	46.57%
Bear Survival Edge	\$3,320,876.50	59.34%

11. Close **IBM Cognos Viewer**.

### **Results:**

You created a revenue and growth report that uses calculated data items to retrieve data based on the year selected in the prompt. You then formatted a column title and the report title using data items that incorporated the order year specified by the user.

Business Analytics

## Set Up Drill Through to Different Locations in a Report

- You can let users navigate to bookmarks in PDF or HTML report outputs.

You can use bookmarks to let users navigate to different pages in a report using an interactive navigation table.

```

graph LR
    NT[Navigation Table] -- "Drill through link A" --> PA[Page A]
    NT -- "Drill through link B" --> PB[Page B]
    NT -- "Drill through link C" --> PC[Page C]
            
```

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Set up drill-through access to bookmarks to let users navigate:

- to related information within the same report
- from one report to the relevant section of a second report, without filtering the second report

Drill-through access to bookmarks will work only with saved report outputs such as HTML and PDF.

---

An example drill-through access to bookmarks is to let users drill through from a list containing images of products to more details about each product contained in another location in the report.

Example of setting up drill-through access for a package to bookmarks in a target report: Your target report displays sales made using different order methods and has a bookmark in the heading where each new order method begins in the report. The source type for this bookmark is data item values. You could set up drill-through access to this report so that data item values are passed to the bookmarks in the target report. If someone drilled through from Fax, for example, they would be taken to the location in the target report where data about Fax orders begins.

**INTERACTION - Toolbar Emoticons > Raise Hand:** Again, ask why this works on saved output like HTML and PDF

## Demo 4: Create Bookmarks to Navigate Report Data

### Purpose:

You will create a report to show all products sold by the company. Because this will be a large report, we will add bookmarks so that users can jump to each product line and back to the top of the report.

Server: localhost  
 User/Password: brettanf/Education1!  
 Studio: Report Studio  
 Package: Go Data Warehouse (query)  
 Report Type: List  
 Folder: Sales and Marketing (query)  
 Namespace: Sales (query)

### Task 1. Add data to the list report and create sections for each product line.

1. From the **Insertable Objects** pane, add the following data items to the list report:  
 Products → Product line, Product type, Product, Product description  
 Sales fact → Product cost
2. Click the **Product line** column, and then click **Section**.

### Task 2. Add a bookmark to Product line and add a new Product line list.

1. On the toolbar, click **Unlock** (currently locked).
2. Click the **Toolbox** tab, and then drag a **Bookmark** to the left of **Product line** section header.



- Click the bookmark, and then in the **Properties** pane, in the **Source Type** list, click **Data Item Value**.

In the Properties pane, the Data Item Value property is set to Product line.

- From the **Toolbox** tab, drag a **List** to the report header, to the left of the title text.
- Click the **Source** tab, and then drag **Product line** to the new list.
- In the new list, right-click **Product line**, and then click **Drill Through Definitions**.
- Click **New Drill Through Definition**, and then click the **Bookmark** tab.
- Under **Source type**, click **Data Item Value**.
- Under **Data Item**, click **Product line**, and then click **OK**.

The results appears as shown below:

<div> <div>Product line</div> <div> <a href="#">&lt;Product line&gt;</a> </div> <div> <a href="#">&lt;Product line&gt;</a> </div> <div> <a href="#">&lt;Product line&gt;</a> </div> </div>			
Double-click to edit text			
Bookmark <Product line>			
Product type	Product	Product description	Product cost
<Product type>	<Product>	<Product description>	<Product cost>
<Product type>	<Product>	<Product description>	<Product cost>
<Product type>	<Product>	<Product description>	<Product cost>

**INTERACTION - Toolbar Emoticons > Raise Hand:** Has anyone created bookmarks in a word processing program? This process is very similar.  
In Step 5, why did we not see Product line1?

### Task 3. Add a Top link to the bookmark.

You want to create a text item next to the Product line section. The text item will have a drill-through definition that let users return to the top of the report.

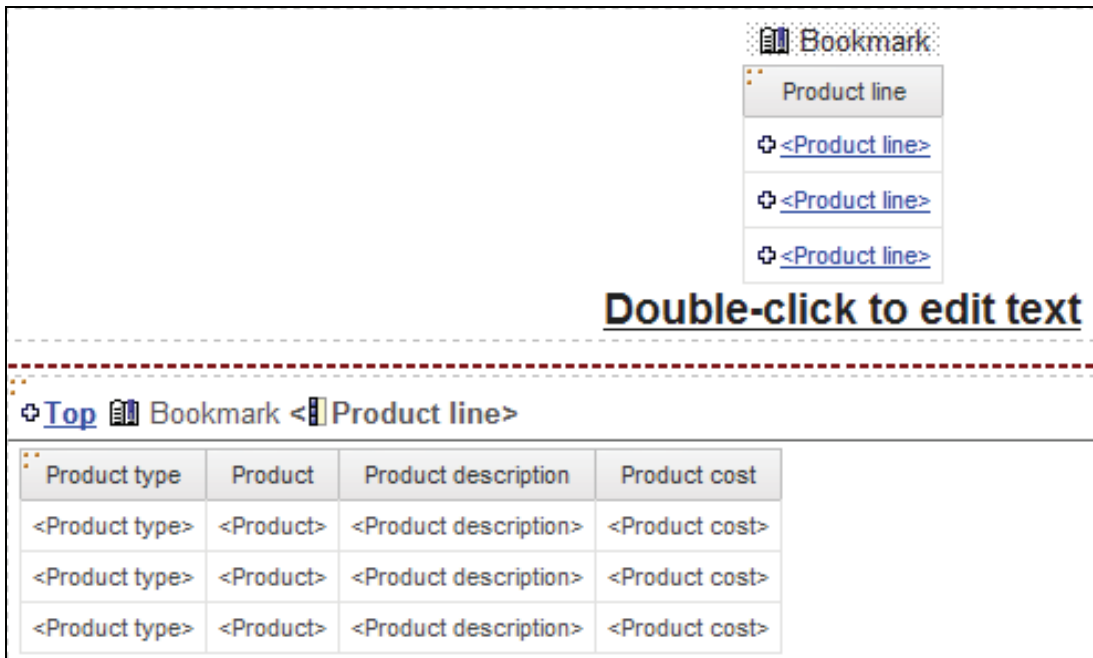
1. Click the **Toolbox** tab, and then drag a **Text Item** to the left of the **Product line** bookmark.
2. In the **Text** dialog box, type **Top** and then click **OK**.
3. Right-click the **Top** text item, and then click **Drill Through Definitions**.
4. Click **New Drill Through Definition**, and then click the **Bookmark** tab.
5. Under **Source type**, click **Text**, and then click the **ellipsis**.
6. Type **Top** click **OK**, and then click **OK** again.

The bookmark you referenced in the drill-through definition does not exist yet. You will now create the bookmark of the top of the report.

7. Drag a **Bookmark** to the left of the **Product line** list in the header.

8. With the new **Bookmark** item selected, in the **Properties** pane, double-click the **Label** property, type **Top** and then click **OK**.

The results appear as follows:



9. On the toolbar, click **Lock** (currently unlocked).

#### **Task 4. Run the report and save the output in HTML format.**

1. From the **File** menu, click **Save**, and then save the report in **My Folders** as **Demo 4\_Create Advanced Dynamic Reports**
2. On the **Welcome** page, click **IBM Cognos content**, and then navigate to **My Folders**.
3. Beside **Demo 4\_Create Advanced Dynamic Reports**, under **Actions**, click **Run with options**.
4. In the **Format** list, ensure **HTML** is selected.
5. Under **Delivery**, click **Save the report**, click **Run**, and then click **OK**.

You must save the report in HTML format first, and then open the saved output in order to use the bookmarks.

Bookmark references also work in previously run reports that are output as PDF.

Reports in HTML only render one page at a time. When it is saved all pages will be rendered and the bookmarks work for all pages.

6. After a moment click **Refresh** to update the page.  
(May need to repeat this until the report updates.)
7. Beside **Demo 4\_Create Advanced Dynamic Reports**, under **Actions**, click **More**, and then click **View report output versions**.
8. Under **Formats**, click **HTML** to view the report output.

The report appears as shown below:

<div> <div>Product line</div> <div> <a href="#">Camping Equipment</a> </div> <div> <a href="#">Golf Equipment</a> </div> <div> <a href="#">Mountaineering Equipment</a> </div> <div> <a href="#">Outdoor Protection</a> </div> <div> <a href="#">Personal Accessories</a> </div> </div>			
<a href="#">TOP</a> Camping Equipment			
Product type	Product	Product description	Product cost
Cooking Gear	TrailChef Canteen	Aluminum canteen. Rugged fleece-lined cover with belt clips, removable shoulder sling and small pocket for water purification tablets bottle. Holds 2 liters	6,607,904.78
Cooking Gear	TrailChef Cook Set	All you will ever need on the trail. Pot gripper and nylon carrying bag included. 1.5 and 2 liter pots with individual lids. Weight: 750 g.	28,305,454.21

In the report header, all product lines appear in a list as links. Clicking a product line brings you to the corresponding product line section in the main body of the report.

9. In the **Product line** list, click **Golf Equipment**.

The link takes you directly to the Golf Equipment section of the report.

10. Click **Top** beside the **Golf Equipment** label.

The link takes you back to the Product line list.

11. Click **Return**, and then **Close**.

Expand Report Studio open for the next demo.

**Results:**

**You created a report to show all products sold by the company. Because this will be a large report, you added bookmarks so that users can jump to each product line and back to the top of the report.**

**INTERACTION - Toolbar Emoticons > Raise Hand:** What formatting would improve the overall navigation of this report?

A: Page Breaks

## Let Users Navigate to Details in the Same Report

- You can create a report that drills through to itself to let users select an item from a high-level list and view its details in a separate list.

**Order Details for 4 Your Eyes**  
(Select a retailer name in the left list to view order details in the right list.)

Retailer	Revenue	Order number	Date	Product	Quantity
<a href="#">1 for 1 Sports shop</a>	6,432,250.32	104801	Jan 11, 2007	Mountain Man Analog	71
<a href="#">4 Golf only</a>	5,015,375.54	104801	Jan 11, 2007	Mountain Man Deluxe	194
<a href="#">4 Your Eyes</a>	873,822.36	104801	Jan 11, 2007	Polar Extreme	27
<a href="#">Aarhus Sport</a>	5,999,906.89	104801	Jan 11, 2007	Polar Ice	74
<a href="#">Accapamento</a>	6,077,377.8	104801	Jan 11, 2007	Polar Sports	567
<a href="#">Accesorios Importados, S.A. de C.V.</a>	7,945,373.51	104801	Jan 11, 2007	Polar Sun	657
<a href="#">AcquaVerde</a>	12,696,927.89	803066	May 11, 2007	Capri	267
<a href="#">Acti'Up Fitness</a>	13,661,733.09	803066	May 11, 2007	Cat Eye	636
<a href="#">ActiForme</a>	2,005,590.67	803066	May 11, 2007	Fairway	511

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By creating a report that drills through to itself, you can let users navigate to areas of interest within a report.

**INTERACTION - Whiteboard:** Ask participants how this might be useful in there business.  
List the responses on the whiteboard.

## Demo 5: Let Users Navigate to Details in the Same Report

### Purpose:

A sales manager has requested a report showing the revenue generated by each retailer. He wants to be able to quickly access detailed order information about sales for a specific retailer. You will create a report that contains two lists and then set up drill-through access between the lists. The manager will be able to click a retailer name in the first list to view details about this retailer in the second list.

Server: localhost  
User/Password: bretttonf/Education1!  
Studio: Report Studio  
Package: Go Data Warehouse (query)  
Report Type: List  
Folder: Sales and Marketing (query)  
Namespace: Sales (query)

### Task 1. Create a list report.

You will add a table, and then add a list to each column in the table. One list will contain high-level order information, and one will contain detailed information.

1. In the **Insertable Objects** pane, click the **Toolbox** tab, and then drag a **Table** object to the right of the list.
2. Accept the default of **2** columns and **1** row, and then click **OK**.
3. Click the list **Container Selector** to select the entire list.

4. Drag the **List** object into the left table cell.
5. From the **Toolbox** tab, drag another **List** object to the right table cell.
6. In the **Insertable Objects** pane, from the **Source** tab, add the following query items to the left list:
  - **Retailers → Retailer**
  - **Sales fact → Revenue**

## **Task 2. Add data to the detailed list and filter the detailed list.**

1. In the **Insertable Objects** pane, from the **Source** tab, and add the following query items to the right list:
  - **Retailers → Retailer**
  - **Sales order → Order number**
  - **Time → Date**
  - **Products → Product**
  - **Sales fact → Quantity**

You will add a parameterized filter to the detailed list so that after you set up drill-through access between the two lists, the detailed list will only show information for the retailer name selected in the left list.


2. Click any column in the right list, on the toolbar, click **Filters**, **Edit Filters**, and then click **Add**.
3. Click **Advanced**, and then **OK**.
4. In the Expression Definition pane, create the following expression:  
**[Sales (query)].[Retailer type].[Retailer name]=?Selected Retailer?**
5. Validate the detail filter expression, in the list, click **ActiForme**, and then click **OK**.
6. Click **OK** twice to close each dialog box.



7. From the **File** menu, click **Save**, and then navigate to **My Folders**.
8. In the **Name** box, type **Demo5\_Create Advanced Dynamic Reports** and then click **Save**.

### Task 3. Set up drill-through access.

You will set up drill-through access between the high-level and the detailed list in this report.

1. In the left list, click the **Retailer** column body, and then in the **Properties** pane, double-click the **Drill Through Definitions** cell.
2. In the **Drill Throughs** box, click **New Drill Through Definition** , beside the **Report** box, click the **ellipsis**, and then navigate to **My Folders**.
3. Click **Demo5\_Create Advanced Dynamic Reports**, and then click **Open**.

You will map the value to be passed to the filter for the detailed list when users drill through.

4. Under the **Parameters** pane, click **Edit** .

You want to pass the Retailer data item value users select to the Selected Retailer parameter so users will only see details for that retailer.

5. In the **Parameters** dialog box, in the **Method** list, click **Pass data item value**, and then in the **Value** list, click **Retailer**.
6. Click **OK** twice to close both dialog boxes.
7. Save the report, and then run the report.

Because there is a parameter in this report, when you run the report, you are prompted to select a value to satisfy this parameter.

8. In the list, click **ActiForme**, and then click **OK**.

The detailed list on the right displays only information for orders for the ActiForme retailer.

9. Close **IBM Cognos Viewer**.

## Task 4. Add a prompt and add a dynamic header.

Because you do not want users to be prompted to select a retailer name when the report runs, you will add a prompt to the report and will then provide a default value for the prompt.

1. In the **Insertable Objects** pane, click the **Toolbox** tab, and then drag a **Value Prompt** onto the report page below the two lists.
2. In the **Prompt Wizard**, click **Use existing parameter**, in the list, click **Selected Retailer**, and then click **Finish**.

You will add a default value for the prompt.

3. Click the **Value Prompt** object, and then in the **Properties** pane, double-click the **Default Selections** cell.
4. In the **Default Selections** dialog box, click **Add**, type **All Retailers** and then click **OK** twice to close both dialog boxes.

Because you added a default selection of All Retailers (which is not one of the Retailer name values), the detailed list on the right will not contain any data until the user makes a selection from the list on the left side of the report. You will also use this default value to create our dynamic title in the next task.

You will hide this prompt because you do not want users making selections from the prompt. The prompt will be used only to ensure users are not prompted to select a value when the report runs.

5. Click the **Value Prompt** object, and then in the **Properties** pane, set the following properties:

**Hide Adornments = Yes**

**Visible = No**

## Task 5. Create a dynamic report title.

You will create a report title that displays Order Details for All Retailers when users have not selected a retailer for which to view detailed data. Once a user selects a retailer name from the left list, the report title will display Order Details for <Selected Retailer Name>.

1. Double-click the report title text, type **Order Details for** press the spacebar, and then click **OK**.
2. From the **Toolbox** tab, drag a **Layout Calculation** object to the end of the report title, and then in the **Available Components** pane, click the **Parameters** tab.
3. From the **Available Components** pane, drag the **Selected Retailer** to the Expression Definition pane.

This calculation will display whichever value is selected for the Selected Retailer parameter. Since you have set All Retailers as the default parameter value, the title will display as Order Details for All Retailers until users select a retailer name.

4. Validate the expression, and then click **OK** to close the dialog box.

You will format the layout calculation text in the report title.

5. Click the report title, and then on the toolbar, click **Pick up style**.
6. Click the layout calculation you just added, and then on the toolbar, click **Apply style**.

## Task 6. Remove a column from the detail list and add text below the title.

You want to remove the Retailer name column from the detailed list since this information will appear in the report title.

1. In the right list, click the **Retailer** column, and then on the toolbar, click **Cut**.
2. In the right list, click the **Order number** column on the toolbar, click **Sort, Ascending**.
3. From the **Insertable Objects** pane, drag a **Block** object to the right of the report title text block to add it below the title.
4. From the Insertable Objects, drag a **Text Item** object to the block you just added, type **(Select a retailer name in the left list to view order details in the right list.)** and then click **OK**.
5. Click the background of the **Block** object containing the explanatory text, in the **Properties** pane, double-click the **Classes** cell.
6. In the **Global Classes** list, double-click **Report title area**, and then click **OK**.
7. Click the explanatory text, and then in the **Properties** pane, click **Font**, and set it to **10pt, Bold**, and then click **OK**.

This report is both the source and the target report for the drill-through definition. Therefore, after making changes to the report, to apply these changes to the target report, you must save the report before running it.

8. Save the report.

## Task 7. Run the report.

1. From the toolbar click **Run Report**.

The title may have the retailer that was used for validation. Once a new session has been started you will see the title show Order Details for All Retailers.

2. In the left list, click **4 Your Eyes**.

The results appear as follows:

Order Details for 4 Your Eyes

(Select a retailer name in the left list to view order details in the right list.)

Retailer	Revenue	Order number	Date	Product	Quantity
<a href="#">1 for 1 Sports shop</a>	6,432,250.32	104801	Jan 11, 2007	Mountain Man Analog	71
<a href="#">4 Golf only</a>	5,015,375.54	104801	Jan 11, 2007	Mountain Man Deluxe	194
<a href="#">4 Your Eyes</a>	873,022.36	104801	Jan 11, 2007	Polar Extreme	27
<a href="#">Aarhus Sport</a>	5,999,906.89	104801	Jan 11, 2007	Polar Ice	74
<a href="#">Accapamento</a>	6,077,377.8	104801	Jan 11, 2007	Polar Sports	567
<a href="#">Accesorios Importados, S.A. de C.V.</a>	7,945,373.51	104801	Jan 11, 2007	Polar Sun	657
<a href="#">AcquaVerde</a>	12,696,927.89	803066	May 11, 2007	Capri	267
<a href="#">Act'N'Up Fitness</a>	13,661,733.09	803066	May 11, 2007	Cat Eye	636
<a href="#">ActiForme</a>	2,005,590.67	803066	May 11, 2007	Fairway	511

The report title explains you are viewing data for 4 Your Eyes and the detailed data for this retailer displays in list on the right.

3. Close **IBM Cognos Viewer**.

Leave Report Studio open for the Workshop.

### Results:

**You created a list report that drills-through to itself on a second list. The first list passes a retailer name as a parameter to the second list.**

**INTERACTION - Microphone:** What is the deference between this report and a master detail relationship report?

A: With a master detail relationship report, each report object can use a different data source.

## Create a Customer Invoice Report

- You can create a professional invoice report using various layout features and objects, such as page headers and footers, blocks and padding.

The challenge in laying out a complex report is performing the translation of a desired layout to the layout objects (for example, blocks or lists) that Report Studio provides for you.

---

When discussing this slide, open the completed solution file for the customer invoice to give participants the visual of what they will be creating in the workshop. The workshop solution is found in Public Folders\B5159\_Solutions\Module 04\_Create\_Advanced\_Dynamic Reports\Workshop\_1.

Plan the layout objects according to page header, body, and footer. Think about horizontal bands and vertical bands of information. The process is iterative and will be refined over time

## Summary

- At the end of this course, you should be able to:
  - filter reports on session parameter values
  - navigate a briefing book using a table of contents
  - create dynamic headers and titles that reflect report data
  - let users navigate to specific locations in reports
  - create a customer invoice report

**INTERACTION - Check Sticker:** Check each objective as it is summarized.

## Workshop 1: Create a Customer Invoice Report (optional)

You have been asked to create a standardized invoice that can be sent out to customers whenever an order is processed.

To accomplish this:

- Create a blank report using the GO Data Warehouse (query) package, Sales and Marketing (query) folder, Sales (query) namespace.
- Create a prompt to select the customer (retailer) and sale rep (employee name).
- Specify that the data for each order should be on a new page.
- Create a page header with the company logo and address.
- Add invoice information to the header, for example invoice number, date, and page.
- Create the top portion of the page body with general information about the order, for example: Customer Name, Sales Person, Order Method, Ship Date and Terms.
- Add a list report to the page body with the following columns: Order number, Product number, Product, Description, Unit Sale Price, Quantity and Revenue.
- Combine the Product and Description into a single column and change the title of the Product number column to Item No.
- Add the order number group footer, tax calculations, and closing information.

For more detailed information outlined as tasks, see the Task Table section.

For the final results, see the Workshop Results section that follows the Task Table section.



## Workshop 1 Task Table

<b>Task 1: Add data and prompts to the query.</b>	
<b>Where to Work</b>	<b>Hints</b>
Blank report	<ul style="list-style-type: none"> <li>• GO Data Warehouse (query), Sales and Marketing (query) folder, Sales (query) namespace</li> </ul>
Query Explorer - Query1	<ul style="list-style-type: none"> <li>• Add a query object.</li> </ul>
Data Items pane	<ul style="list-style-type: none"> <li>• Add Order Number query item (Sales order query subject) as a data item.</li> </ul>
Prompt Page	<ul style="list-style-type: none"> <li>• Value Prompt - Parameter name -Retailer [Sales(query)].[Retailers].[Retailer]</li> <li>• Value Prompt - Parameter name - SalesRep [Sales(query)].[Employee by Region].[Employee name]</li> </ul>
<b>Task 2: Specify that data for each order begin on a new page.</b>	
<b>Where to Work</b>	<b>Hints</b>
Page Explorer, Report Pages	<ul style="list-style-type: none"> <li>• Drag a page set to the Report Pages pane.</li> </ul>
Properties pane, Grouping and Sorting	<ul style="list-style-type: none"> <li>• Change the property of the Query cell to Query1.</li> <li>• Drag Order number to the Groups folder.</li> <li>• Drag Page1 into the Detail pages folder.</li> <li>• In the Properties pane, change the Query cell to Query1.</li> </ul>

**Task 3: Create a page header with the company logo and address.**

Where to Work	Hints
Page Explorer, Page 1, Toolbox	<ul style="list-style-type: none"> <li>• Drag a Table object to the work area. (default size)</li> <li>• Drag a table (1 column 5 rows) to the left table cell.</li> <li>• Drag an Image into the top block, point image url to logo.jpg.</li> <li>• Drag Text Item objects to the four remaining cells, with the following text: <ul style="list-style-type: none"> <li>• The Great Outdoors Company</li> <li>• 3755 Riverside Drive</li> <li>• Ottawa, Ontario K1G 4K9</li> <li>• (613)738-1440</li> </ul> </li> </ul>

<b>Task 4: Add invoice information to the header.</b>	
<b>Where to Work</b>	<b>Hints</b>
Page layout	<ul style="list-style-type: none"> <li>• Drag a Table into the right table cell.(1 column, 4 rows)</li> <li>• Drag Text Item objects to the four cells, with the following text:               <ol style="list-style-type: none"> <li>1. INVOICE (Arial, 24pt, Bold)</li> <li>2. INVOICE NO: (include a space after the colon)(Arial, 10pt, Bold)</li> <li>3. DATE: (Arial, 10pt, Bold)</li> <li>4. PAGE: (Arial, 10pt, Bold)</li> </ol> </li> </ul>
Toolbox tab	<ul style="list-style-type: none"> <li>• Drag a Date object to the right of the DATE:</li> <li>• Drag a Page Number object to the right of the PAGE:</li> </ul>
Data items tab	<ul style="list-style-type: none"> <li>• Drag the Order number data item to the right of the INVOICE NO: text item in the second row in the right table cell.</li> </ul>

**Task 5: Add a border and padding to the page header.**

Where to Work	Hints
Page layout, Properties pane (Border cell)	<ul style="list-style-type: none"> <li>• Border: 1 pt and Solid line are selected, and then click bottom border.</li> </ul>
List report	<ul style="list-style-type: none"> <li>• Click anywhere in the left table cell, click Select Ancestor, and then click Table Cell.</li> <li>• Shift-click the right table cell, in the white space below PAGE:.</li> <li>• Padding of 10 in the bottom box.</li> </ul>

**Task 6: Create the top portion of the page body.**

Where to Work	Hints
Insertable Objects pane (Toolbox tab)	<ul style="list-style-type: none"> <li>• Drag two Block objects to the body of the report, under the page header.</li> <li>• Drag a Table with 5 columns and 2 rows into the first empty block.</li> <li>• Drag Text Item objects to the five cells, with the following text: <ul style="list-style-type: none"> <li>• Customer Name</li> <li>• Sales Person</li> <li>• Order Method</li> <li>• Ship Date</li> <li>• Terms</li> </ul> </li> <li>• Center the text, change the background color to silver.</li> <li>• Draw a border around the entire table.</li> </ul>

<b>Task 7: Add data to the page body.</b>	
<b>Where to Work</b>	<b>Hints</b>
Insertable Objects pane (Source tab)	<ul style="list-style-type: none"> <li>• Retailer query item, below the Customer Name heading.</li> </ul>
Sales namespace	<ul style="list-style-type: none"> <li>• Employee name query item, below the Sales Person heading.</li> <li>• Order method type query item, below the Order method heading.</li> <li>• Date (ship date) query item below the Ship Date heading.</li> </ul>
Toolbox tab	<ul style="list-style-type: none"> <li>• Text Item : Net 30</li> </ul>
<b>Task 8: Add list details to the report and format the list.</b>	
<b>Where to Work</b>	<b>Hints</b>
Toolbox tab	<ul style="list-style-type: none"> <li>• Drag a List object to the empty block.</li> <li>• Select the list, set the Query cell to Query1.</li> </ul>
Data Items tab	<ul style="list-style-type: none"> <li>• Drag Order number to the list report.</li> </ul>
Source tab, Sales (query) namespace	<ul style="list-style-type: none"> <li>• Add the following to the list report: <ul style="list-style-type: none"> <li>Products → Product number, Product, Product description</li> <li>Sales fact → Unit sale price, Quantity, Revenue</li> </ul> </li> <li>• Group on Order number column.</li> <li>• Change the background color to Silver.</li> <li>• Select the bottom block, and add 20 pixels of padding above the block.</li> </ul>

**Task 9: Combine columns and change column titles.**

Where to Work	Hints
Toolbox tab	<ul style="list-style-type: none"><li>• Unlock.</li><li>• Drag two Block objects into the first Product description cell (not the header).</li><li>• Product name data item from the Product name column into the first empty block.</li><li>• Product description data item from the Product description column into the second empty block.</li><li>• Lock, delete Product.</li><li>• Change title of Product number to Item No.</li><li>• Change the title of Revenue to Price.</li></ul>

<b>Task 10: Add the Order number group footer.</b>	
<b>Where to Work</b>	<b>Hints</b>
Toolbar, Summarize	<ul style="list-style-type: none"> <li>• Total on Price.</li> </ul>
Toolbar, Headers and Footers	<ul style="list-style-type: none"> <li>• Clear the Overall footer check box.</li> </ul>
Page Layout, Properties	<ul style="list-style-type: none"> <li>• Select list, make Order number a property of the list.</li> <li>• Delete Order number column.</li> <li>• Change class Order number summary column to List column body cell.</li> <li>• Repeat for Revenue cell in the summary row.</li> </ul>
Structure menu	<ul style="list-style-type: none"> <li>• Insert List Row Cells Below, type 3.</li> </ul>
Structure menu/Merge List Row Cells	<ul style="list-style-type: none"> <li>• Merge the first three cells in the first row of empty cells.</li> <li>• Repeat for the next two rows of empty cells.</li> </ul>

<b>Task 11: Add text and data to the report.</b>	
<b>Where to Work</b>	<b>Hints</b>
Toolbar	<ul style="list-style-type: none"> <li>• Unlock , delete Order number data item in the summary rows</li> </ul>
Structure menu	<ul style="list-style-type: none"> <li>• Split List Row Cell.</li> <li>• In the first three blank cells in the split row Merge List Row Cells.</li> </ul>
Toolbar	<ul style="list-style-type: none"> <li>• Drag two Block objects to the merged cell.</li> </ul>
Insertable Objects pane/Toolbox tab	<ul style="list-style-type: none"> <li>• Text Item, first block, type: Please make cheque payable to: 'THE GREAT OUTDOORS COMPANY.'</li> <li>• Text Item, second block, type GST Exempt # 5389576.</li> <li>• Additional Text Item objects as required for results.</li> <li>• Insert List Row Cells Below the TOTAL cell, from the Structure menu, click, and then click OK to insert one row.</li> <li>• Merge List Row Cells.</li> <li>• Text Item in the empty cell, type Thank you for your business.</li> <li>• Center, change the font to Arial, 18pt, Bold and Italic.</li> </ul>




<b>Task 12: Add tax and total calculations.</b>	
<b>Where to Work</b>	<b>Hints</b>
Toolbox tab/query calculation	<ul style="list-style-type: none"> <li>• Add Revenue from the Source tab to create the following calculated columns:</li> <li>• GST: [Sales (query)].[Sales fact].[Revenue]*.05</li> <li>• PST: [Sales (query)].[Sales fact].[Revenue]*.08</li> <li>• TOTAL: [Sales (query)].[Sales fact].[Revenue]*1.13</li> <li>• TOTAL calculation to Bold.</li> <li>• Format GST, PST, and TOTAL as Currency, \$(USD) - United States of America, dollar.</li> </ul>
Run the report	<ul style="list-style-type: none"> <li>• Gone Bush Supplies, Dave Smythe</li> </ul>

If you need more information to complete a task, see the Step-by-Step instructions at the end of the Workshop.

## Workshop 1: Results

The results appear as follows:

 <p>The Great Outdoors Company 3755 Riverside Drive Ottawa, Ontario K1G 4K9 (613)738-1440</p>		<h1>INVOICE</h1> <p>INVOICE NO: &lt;Order number&gt; DATE: &lt;Date&gt; PAGE: &lt;1&gt;</p>		
Customer Name <Retailer>	Sales Person <Employee name>	Order Method <Order method type>	Ship Date <Date (ship date)>	Terms Net 30
Item No. <Product number>	Product description <Product> <Product description>	Unit sale price <Unit sale price>	Quantity <Quantity>	Price <Revenue>
Please make check payable to: THE GREAT OUTDOORS COMPANY GST Exempt # 5389576			SUBTOTAL	<Total(Revenue)>
1. NO RETURNS without RMA			GST	<GST>
2. 15% restocking charge will be applied to returned merchandise.			PST	<PST>
3. 18% interest per annum will be charged on overdue accounts.			TOTAL	<TOTAL>
<b>Thank you for your business</b>				
Item No. <Product number>	Product description <Product> <Product description>	Unit sale price <Unit sale price>	Quantity <Quantity>	Price <Revenue>
Please make check payable to: THE GREAT OUTDOORS COMPANY GST Exempt # 5389576			SUBTOTAL	<Total(Revenue)>
1. NO RETURNS without RMA			GST	<GST>
2. 15% restocking charge will be applied to returned merchandise.			PST	<PST>
3. 18% interest per annum will be charged on overdue accounts.			TOTAL	<TOTAL>
<b>Thank you for your business</b>				

Results for Retailer name of Gone Bush Supplies and Employee name Dave Smythe:

Customer Name	Sales Person	Order Method	Ship Date	Terms
Gone Bush Supplies	Dave Smythe	Sales visit	Sep 29, 2005	Net 30

Item No.	Product description	Unit sale price	Quantity	Price
5110	TrailChef Cook Set All you will ever need on the trail. Pot gripper and nylon carrying bag included. 1.5 and 2 liter pots with individual lids. Weight: 750 g.	53.28	321	17,102.88
6110	TrailChef Deluxe Cook Set Cascade set features 1, 2, and 3 liter pots with individual lids that double as fry pans or plates. Pot gripper and nylon carrying bag included. Weight: 1.4 kg.	121.94	196	23,900.24
25110	Canyon Mule Weekender Backpack A weekend getaway requires this pack. It features a large front compression pocket, harness and waist belt, foam molded back panel, vinyl covered gear loops. 50,000 cu. cm.	268.74	118	31,711.32
Please make check payable to: THE GREAT OUTDOORS COMPANY GST Exempt # 5389576				<b>SUBTOTAL 72,714.44</b>
1. NO RETURNS without RMA				GST \$3,635.72
2. 15% restocking charge will be applied to returned merchandise.				PST \$5,817.16
3. 18% interest per annum will be charged on overdue accounts.				<b>TOTAL \$82,167.32</b>

***Thank you for your business***

## Workshop 1: Step-by-Step Instructions

Server: localhost  
 User/Password: brettanf/Education1!  
 Studio: Report Studio  
 Package: Go Data Warehouse (query)  
 Report Type: Blank  
 Folder: Sales and Marketing (query)  
 Namespace: Sales (query)

### Task 1. Add data and prompts to the query.

1. Point to **Query Explorer**, and then click **Queries**.
2. From the **Insertable Objects** pane, drag a **Query** object into the work area.
3. Double-click **Query1**.
4. In the **Insertable Objects** pane, expand the **Sales order** query subject, and then drag the **Order number** level to the **Data Items** pane.
5. Point to **Page Explorer**, click **Prompt Pages**, drag a **Page** to the **Prompt Pages** work area, and then double-click **Prompt Page 1**.
6. From the toolbox tab, add a **Value Prompt**.
7. Name the parameter **Retailer**, click **Next**, and then click the **ellipsis** to the right of **Package item**.
8. Navigate to **Sales and Marketing (query)/Sales (query)/Retailers**, and then click **Retailer**.
9. Click **OK**, **Next**, and then click **Finish**.
10. Repeat steps 6-8 to create a **Value Prompt** named **SalesRep**, and using **Employee name** from **Employee by region**.

You will have to click **Next** twice after you add **Employee name**.

## Task 2. Specify that data for each order to begin on a new page.

You want the report to include a new page for each order, so you will use a page set to specify that each order number will have its own detail page.

1. Point to **Page Explorer**, click **Report Pages**, and then drag a **Page Set** object to the **Report Pages** pane.

You want to specify that a new page should appear for each order number in Query1 so you will link this page set to the Order number data item in Query1.

2. With **Page Set1** selected, in the **Properties** pane, click the **Query** cell, and then in the list, click **Query1**.
3. In the **Properties** pane, double-click the **Grouping & Sorting** cell, in the **Data items** pane, double-click **Order number** to add it to the **Groups** folder, and then click **OK**.

You want each page to display data for one order number, so you will add Page1 as a detail page in Page Set1.

4. In the **Report Pages** pane, drag **Page1** onto the **Detail Pages** folder, in the **Properties** pane, click the **Query** cell, and then in the list, click **Query1**.

## Task 3. Create a page header with the company logo and address.

1. Double-click **Page1**.
2. In the **Insertable Objects** pane, from the **Toolbox** tab, drag a **Table** object onto the work area, and then click **OK** to accept the default table settings.
3. Drag a **Table** into the left table cell with **1** column and **5** rows.

You want the Great Outdoors Company logo and address to appear in this table. The logo will appear in the top cell, and the four address lines will appear in the remaining four cells.

4. Drag an **Image** into the top table cell.
5. Double-click the **Image** object, click **Browse**, click **logo.jpg**, and then click **OK** twice.

The Great Outdoors Company logo appears in the top block.

6. Drag a **Text Item** object to the second table cell, in the **Text** dialog box, type **The Great Outdoors Company** then click **OK**.
7. Repeat steps 6 and 7 to add the following text to the last three table cells:  
**3755 Riverside Drive**  
**Ottawa, Ontario K1G 4K9**  
**(613)738-1440**

#### **Task 4. Add invoice information to the header.**

1. Drag a **Table** into the right table cell with **1** column and **4** rows.
2. Drag a **Text Item** object into the top cell in the table you just added, type **INVOICE** and then click **OK**.
3. Click the **Text Item**, and then on the toolbar set the font to **Arial**, **24 pt**, **Bold**.
4. Drag a **Text Item** object into the second table cell, type **INVOICE NO:** (include a space after the colon), and then click **OK**.
5. Click the text item object and change the font to **Arial**, **10 pt**, **Bold**.
6. Repeat steps 4 and 5 to add **DATE:** and **PAGE:** to the third and fourth cells in the table, ensuring that you include a space following the colons.
7. From the **Toolbox** tab, drag a **Date** object to the right of the **DATE:** text item in the third table cell.

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If the list of images does not appear, ensure that the server URL is correct. If it is OK, in IIS, confirm the `ibmcognos10\samples\images` folder has directory browsing checked.

8. Drag a **Page Number** object to the right of the **PAGE:** text item in the fourth table cell.
9. In the **Insertable Objects** pane, click the **Data Items** tab, and then drag the **Order number** data item to the right of the **INVOICE NO:** text item in the second table cell.

### **Task 5. Add a border and padding to the page header.**

1. Click the outer table **Container Selector** to select the entire table.
2. In the **Properties** pane, under **Box**, double-click the **Border** cell.
3. Ensure that **1 pt** and **Solid line** are selected, click **bottom border**, and then click **OK**.

The border is applied to the bottom of the table. You would like to add padding to the bottom of the table cells, to add some space before the border.

4. With the outer table still selected, Shift+click the white space under **PAGE:** and then double click the **Padding** cell.
5. In the bottom box, type **10**, and then click **OK**.

There is now space between the bottom of the table cells and the border, and the page header is now complete.


### **Task 6. Create the top portion of the page body.**

You want the top of each page body to include information about the order (sales person, order method, ship date and terms)

1. In the **Insertable Objects** pane, click the **Toolbox** tab, and then drag two **Block** objects to the body of the report, under the page header.
2. Drag a **Table** into the first empty block with **5** columns and **2** rows.
3. Click a table cell in the top row, in the **Properties** pane, click **Select Ancestor**, and then click **Block**.
4. In the **Properties** pane, double-click the **Padding** cell, in the top box type **20**, and then click **OK**.

5. Drag a **Text Item** object into the top left table cell, in the **Text** box, type **Customer Name** and then click **OK**.
6. Repeat step 5 to add **Text Item** objects to the remaining four table cells in the top row: **Sales Person**, **Order Method**, **Ship Date**, and **Terms**.

You want to center all of the text items.

7. Click the table **Container Selector** to select the entire table.
8. On the toolbar, click **Center**.
9. With the table still selected, in the **Properties** pane, under **Box**, double-click the **Border** cell.
10. Click **Apply All Borders**  and then click **OK**.
11. Shift+click the five top table cells (not the text items).
12. In the **Properties** pane, under **Color & Background**, double-click the **Background Color** property, click **Silver**, and then click **OK**.
13. Double-click the **Font** cell, click **Bold**, and then click **OK**.

The table titles are shaded and the text is bold.

You would now like to add data for these items.

## Task 7. Add data to the page body.

1. In the **Insertable Objects** pane, click the **Source** tab, expand the **Retailers** query subject, and then drag the **Retailer** query item to the bottom left table cell, below the **Customer Name** heading.
2. Expand the **Employee by region** query subject, and then drag the **Employee name** query item below the **Sales Person** heading.
3. Expand the **Order method** query subject, and then drag the **Order method type** query item below the **Order Method** heading.
4. Expand the **Time (ship date)** query subject, and then drag the **Date (ship date)** query item below the **Ship Date** heading.
5. Click the **Toolbox** tab, drag a **Text Item** to the last table cell below the **Terms** heading, type **Net 30** and then click **OK**.



## Task 8. Add list details to the report and format the list.

1. Click the empty block in the page body.
2. In the **Properties** pane, under **Box**, double-click the **Padding** cell, in top box, type **20**, and then click **OK**.
3. In the **Insertable Objects** pane, from the **Toolbox** tab, drag a **List** object to the empty block.
4. Click the list **Container Selector** to select the entire list.
5. In the **Properties** pane, click the **Query** cell, and then in the list, click **Query1**.
6. In the **Insertable Objects** pane, click the **Data Items** tab, and then drag **Order number** to the list report.
7. In the **Insertable Objects** pane, click the **Source** tab, and then add the following query items to the list report:  
 Products → Codes → **Product number**  
 Products → **Product, Product description**  
 Sales fact → **Unit sale price, Quantity, Revenue**
8. In the list report, click the **Order number** column, and then on the toolbar, click **Group/Ungroup**.
9. You would like to change the background color of the list column titles to silver.
10. Click the **Order number** column title, click **Select Ancestor**, and then click **List Columns Title Style**.
11. Change the **Background Color** to **Silver** and **Font** to **Bold**.

## Task 9. Combine columns and change column titles.

There are two columns for the product and description. You would like to combine them into a single column. Before you can combine the columns, you need to unlock the page objects.

1. On the toolbar, click **Unlock (currently locked)**.
2. In the Insertable Objects pane, click the **Toolbox** tab, and then drag a **Block** object into the first **Product description** cell (not the header), when a small flashing black bar appears to the right of the Product description item.
3. Drag another **Block** to the **Product description** cell.
4. Drag the **Product** data item into the first empty block.
5. Drag the **Product description** data item into the second empty block.
6. On the toolbar, click **Lock (currently unlocked)**.
7. Click the **Product** column, and then click **Delete**.
8. In the list report, click the **Product number** column title.
9. In the Properties pane click the **Source Type** cell and then in the list click **Text**.
10. Double-click the **Text** cell, and type **Item No.** and then click **OK**.
11. Click the **Revenue** column title, and then change the **Source Type** to **Text**, and then change Text cell to **Price**.

You are now ready to add the Order number group footer to the report.

## Task 10. Add the Order number group footer.

1. Click the **Price** column, on the toolbar, click **Summarize**, and then click **Total**.
2. On the toolbar, click **Headers & Footers**, click **List Headers & Footers**, clear the **Overall footer** check box, and then click **OK**.
3. Click the list **Container Selector** to select the entire list.
4. Double-click the **Properties** cell, select **Order number**, and then click **OK**.
5. In the list report, click the **Order number** column, and then on the toolbar, click **Cut**.
6. Ctrl+click the **Order number** summary cell and the **Revenue** cell in the summary row, and then in the **Properties** pane, double-click the **Classes** cell.
7. Under **Global Classes**, click **List column body cell**, click the right arrow, and then click **OK**.
8. Click the **Order number** summary cell, from the **Structure** menu, point to **Headers & Footers**, click **Insert List Row Cells Below**, type **3**, and then click **OK**.
9. Shift+click the first three cells in the first row of empty cells you just added, and then from the **Structure** menu, point to **Headers & Footers**, click **Merge List Row Cells**.
10. Repeat step 9 for the next two rows of empty cells.

## Task 11. Add text and data to the report.

1. On the toolbar, click **Unlock (currently locked)**, click the **Order number** text items in the summary rows, and then on the toolbar, click **Delete**.

The summary value for Revenue still appears.

2. Click the cell from which you just deleted the **Order number** data item, and then from the **Structure** menu, click **Headers & Footers**, click **Split List Row Cell**.
3. Shift+click the first three blank cells in the row you just split, and then from the **Structure** menu, click **Merge List Row Cells**.
4. From the **Insertable Objects** pane, drag a **Block** object to the cell you just merged, and then drag another **Block** object to the right of the first block.
5. Drag a **Text Item** object to the first block, type **Please make check payable to: THE GREAT OUTDOORS COMPANY** and then click **OK**.
6. With the text item selected, from the toolbar, click **Bold**.
7. Drag a **Text Item** object to the second block, type **GST Exempt # 5389576** and then click **OK**.
8. Drag additional **Text Item** objects to the remaining empty cells and align and style them so the final result appears as shown below:

You will need to click Right to right align GST, PST, and TOTAL.

<b>Please make cheque payable to: THE GREAT OUTDOORS COMPANY</b>	<b>SUBTOTAL</b>	<b>&lt;Total(Revenue)&gt;</b>
<b>GST Exempt # 5389576</b>		
1. NO RETURNS without RMA	<b>GST</b>	
2. 15% restocking charge will be applied to returned merchandise.	<b>PST</b>	
3. 18% interest per annum will be charged on overdue accounts.	<b>TOTAL</b>	

9. Click the **TOTAL** cell, from the **Structure** menu, point to **Headers & Footers**, click **Insert List Row Cells Below**, and then click **OK** to insert one row.

Task 11, Step 8. GST and PST are Canadian taxes. GST is the Goods and Services tax and is charged at 5%. PST is the Provincial Sales Tax and is charged at 8%.

Task 12, Step 2 Make sure the Revenue item for the tax calculations is added from the Source tab. If it is added from the Data Items tab, the results will be incorrect.

10. Shift+click the five empty cells you just added, and then from the **Structure** menu, point to **Headers & Footers**, click **Merge List Row Cells**.
11. Drag a **Text Item** to the empty cell, type **Thank you for your business**, and then click **OK**.
12. Click the **text item**, change the font to **Arial, 18 pt, Bold and Italic**, and then **Center** the text.

You are ready to add the final calculations to the report.

## **Task 12. Add tax and total calculations.**

1. Drag a **Query Calculation** object into the empty cell to the right of the GST cell, and enter the name **GST**.

The Report Expression box appears.

2. In the **Expression Definition** box, click the **Source** tab, and then drag **Sales fact → Revenue** to the **Expression Definition** pane.
3. At the end of the expression type **\*.05**.
4. The expression appears as shown below:  
**[Sales (query)].[Sales fact].[Revenue]\*.05**
5. Click **Validate** and choose any name from the prompt lists.
6. When the Information box indicates that there are no errors, click **OK**.

Repeat steps 1 to 5 to add calculations for **PST** and **TOTAL**, using the following information:

Name: **PST**

Expression: **[Sales (query)].[Sales fact].[Revenue]\*.08**

Name: **TOTAL**

Expression: **[Sales (query)].[Sales fact].[Revenue]\* 1.13**

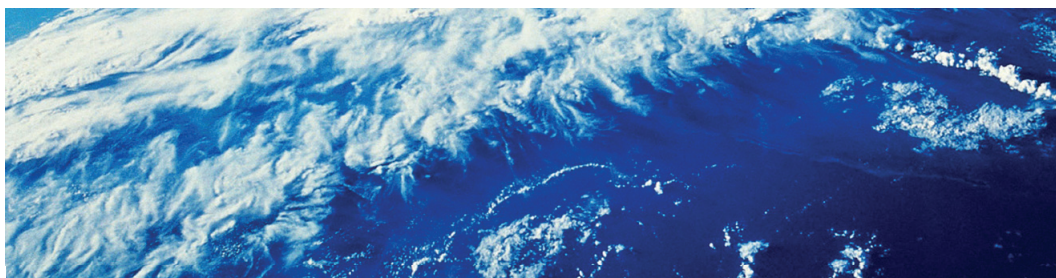
7. Click the **<GST>** cell (not the text item), and align it **Center**.
8. Repeat step 7 to align the **<PST>** and **<TOTAL>** calculations.
9. Click the **TOTAL** calculation and change the font to **Bold**.
10. Ctrl+click the **GST**, **PST**, and **TOTAL** calculations, and then in the **Properties** pane under **Data**, double-click the **Data Format** cell.
11. In the **Format type** list, click **Currency**.
12. Under **Properties**, click the **Currency** property, in the **Currency** list, click **\$(USD) - United States of America, dollar**, and then click **OK**.
13. Click **Lock (currently unlocked)**.
14. Run the report, select **Gone Bush Supplies** for the **Retailer name**, and **Dave Smythe** for the **Employee name**, and then click **OK**.
15. **Page down** to see how the order number changes with each new page.
16. Close **IBM Cognos Viewer**, close **IBM Cognos Connection**, and close **Report Studio**.



---

# Design Effective Prompts

IBM Cognos BI



Business Analytics

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## Objectives

- At the end of this module, you should be able to:
  - control report displays using prompts
  - specify conditional formatting values using prompts
  - specify conditional rendering of objects based on prompts selection
  - create sorted and filtered reports based on prompt selection

If you intend to teach this module, students should be familiar with:

- Different types of data sources (dimensional, relational, dimensionally modeled relational)
- Creating lists and crosstabs in Report Studio
- Creating filters in Report Studio
- Creating prompts in Report Studio
- Conditionally formatting reports
- Creating calculated data items
- The IBM Cognos query model

Suggested modules to reference:

- Overview of IBM Cognos BI
- Introduction to Report Authoring
- Focus Reports Using Filters
- Focus Reports Using Prompts
- Customize Reports with Conditional Formatting
- Enhance Report Layout
- Extend Reports Using Calculations
- Create Query Models

**INTERACTION - Star Sticker:** Star each objective as it is presented.

## Let Users Specify the Criteria Used to Highlight Exceptional Data

- You can let users specify the criteria used to conditionally highlight report data by applying conditional formatting that uses prompted values.

Measure

Parameter value

Calculated Data  
Item Values

If ([Gross profit] < ?Low gross profit?) then (1) else (2)

**Use this calculated data item to conditionally format data in a report depending on the Low gross profit parameter value a user specifies at run time.**

Cognos.  
software

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By setting up conditional formatting using prompted values, you can create a report that does not need to be modified when company benchmark values change.

If you do not want the calculated data item to appear in the report, you can either:

- add the calculated data item to the report to test conditional formatting, and then cut the calculated data item from the report layout, or
- add the calculated data item to the query in Query Explorer but not to the report layout

When applying conditional formatting, you cannot use parameters directly in a variable expression, but you can reference data items that use parameters.

**INTERACTION - Toolbar Emoticons > Raise Hand:** Ask the participants, what must you do if you do not include the calculated data item in the report layout.

A: You must make the data item a property of the report object you want to conditionally format

## Demo 1: Create a Prompt That Lets Users Select Conditional Formatting Values

### Purpose:

Management has requested a report that lets them identify the total revenue and gross profit generated in every country by each product type. They want to be able to customize this report by highlighting high and low gross profit values based on changing benchmark levels. You will create a report that formats gross profit to appear in different colors if gross profit is exceptionally low or exceptionally high. This formatting will be based on high and low gross profit values users select using prompts at run time.

Server: localhost  
 User/Password: brettanf/Education1!  
 Studio: Report Studio  
 Package: GO Data Warehouse (query)  
 Report Type: List  
 Folder: Sales and Marketing (query)  
 Namespace: Sales (query)

### Task 1. Create a report with product sales information.

1. In the **Insertable Objects** pane, from the **Source** tab, add the following query items to the list report:
  - Employee by region → Country
  - Products → Product line, Product type
  - Sales fact → Revenue, Gross profit

2. In the report, Ctrl-click the **Country** and the **Product line** columns, and then on the toolbar, click **Group / Ungroup**.
3. Click the **Product type** column, on the toolbar, click **Sort**, then **Ascending**.

## **Task 2. Add a calculated data item with an expression that uses parameter values and run the report.**

You will add a calculated data item that compares the gross profit values to those selected in two prompts: Low gross profit and High gross profit. This calculated data item will then assign a value: 1 for gross profit less than the Low gross profit value, 2 for gross profit values greater than the Low gross profit value but less than the High gross profit value, and 3 for gross profit greater than the High gross profit value.

1. In the **Insertable Objects** pane, click the **Toolbox** tab, and then drag a **Query Calculation** object to the end of the list.
2. In the **Create Calculation** dialog box, type **LowMedHigh**, and then click **OK**.
3. In the **Expression Definition** pane, create the expression as follows:

**If ([Gross profit] < ?Low gross profit?) then (1) else if ([Gross profit] < ?High gross profit?) then (2) else (3)**

Hint: Select **[Gross profit]** from **Data Items** tab.

This calculation retrieves the prompt values the user specifies at run time and assigns a value of 1, 2, or 3 to each row depending on their gross profit values.

4. Validate the expression using:
  - **High gross profit = 3000000** (3 million)
  - **Low gross profit = 600000** (600,000)
5. Click **OK** to close each dialog box.
6. From the toolbar, click **Run Report**.
7. Ensure **High gross profit = 3000000** (3 million), **Low gross profit = 600000** (600,000), and then click **OK**.

The LowMedHigh column displays a value for each row based on the values you supplied using the prompts. Product types generating below \$600,000 have a value of 1, Product types generating between \$600,000 and \$3M have a value of 2, and Product types generating over \$3 million in gross profit have a value of 3.

8. Close **IBM Cognos Viewer**.

### **Task 3. Create a variable based on the calculation.**

You will create a String variable that you can use to conditionally format the Gross profit column of the report. You will use the LowMedHigh query calculation to specify the conditions for this variable.

1. In the list, click the **Gross profit** column body, in the **Properties** pane, double-click the **Style Variable** cell, in the **Variable** list, click **New string variable**.
2. In the **Name** box, type **LowMedHigh**, and then click **Add**.

Since you want to apply conditional formatting only to high and low gross profit value, you will add two values (1 and 3) for which you will be able to apply conditional formatting.

3. In the **Add** box, type **1**, and then click **OK**.
4. Click **Add**, in the **Add** box, type **3**, and then click **OK**.
5. Click **OK** to close the **Style Variable** dialog box.
6. In the **Report Expression** dialog box, from the **Available Components** pane, drag the **LowMedHigh** data item to the **Expression Definition** pane.
7. Click **Validate**, and then after the expression is validated without any errors, click **OK** twice to close both dialog boxes.

#### **Task 4. Apply conditional formatting based on the LowMedHigh variable and run the report.**

1. With the **Gross profit** column still selected, point to **Condition Explorer**, and then click **1**.  
You want low gross profit values to have a red background.
2. On the toolbar, click the down arrow beside **Background Color**, click **Red**, click **Foreground Color**, click **White**, and then click **Bold**.  
You want high gross profit values to have a green background.
3. With the **Gross profit** column still selected, point to **Condition Explorer**, and then click **3**.
4. On the toolbar, click the down arrow beside **Background Color**, click **Green**, click **Foreground Color**, click **White**, and then click **Bold**.
5. Double-click the **Explorer Bar** to turn off conditional formatting.

6. From the toolbar, click **Run Report**.
7. Ensure **High gross profit = 3000000** (3 million), **Low gross profit = 600000** (600,000), and then click **OK**.

A section of the results appear as follows:


Country	Product line	Product type	Revenue	Gross profit	LowMedHigh
Australia	Camping Equipment	Cooking Gear	7,464,381.59	2,938,400.28	2
		Lanterns	3,416,036.14	1,495,901.15	2
		Packs	9,063,575.38	3,590,975.57	3
		Sleeping Bags	8,027,884.16	3,217,019.11	3
		Tents	13,964,054.92	4,481,882.33	3
	Golf Equipment	Golf Accessories	1,318,528.37	805,825.44	2
		Irons	6,839,374.25	3,270,992.55	3
		Putters	2,401,092.95	1,150,708.83	2
		Woods	8,520,560.86	4,181,044.42	3
	Mountaineering Equipment	Climbing Accessories	2,646,717.89	1,356,587.33	2
		Rope	4,039,366.36	1,274,262.53	2
		Safety	2,637,772.5	983,979.46	2
		Tools	4,609,263.31	1,930,313.75	2
	Outdoor Protection	First Aid	169,911.38	91,347.2	1
		Insect Repellents	559,867.46	371,574.87	1
		Sunscreen	410,564.72	245,984.02	1
	Personal Accessories	Binoculars	2,214,888.28	756,112.83	2

In the Gross profit column, values of less than six-hundred thousand dollars are highlighted in red and values of greater than three million dollars are highlighted in green.

8. Close **IBM Cognos Viewer**.

## Task 5. Cut the calculated column and run the report.

You do not want to see the LowMedHigh column in the list report.

1. In the list, click the **LowMedHigh** column, then on the toolbar, click **Cut** . To let the string variable use the LowMedHigh data item values for each row in the report, you need to make the LowMedHigh data item a property of the List object.
2. Click the list **Container Selector** to select the entire list.
3. In the **Properties** pane, double-click the **Properties** cell, select the **LowMedHigh** check box, click **OK**, and then run the report.



4. Ensure **High gross profit = 3000000** (3 million), **Low gross profit = 600000** (600,000), and then click **OK**.

The result appears as shown below:

Country	Product line	Product type	Revenue	Gross profit
Australia	Camping Equipment	Cooking Gear	7,464,381.59	2,938,400.28
		Lanterns	3,416,036.14	1,495,901.15
		Packs	9,063,575.38	3,590,975.57
		Sleeping Bags	8,027,884.16	3,217,019.11
		Tents	13,964,054.92	4,481,882.33
	Golf Equipment	Golf Accessories	1,318,528.37	805,825.44
		Irons	6,839,374.25	3,270,992.55
		Putters	2,401,092.95	1,150,708.83
		Woods	8,520,560.86	4,181,044.42
	Mountaineering Equipment	Climbing Accessories	2,646,717.89	1,356,587.33
		Rope	4,039,366.36	1,274,262.53
		Safety	2,637,772.5	983,979.46
		Tools	4,609,263.31	1,930,313.75
	Outdoor Protection	First Aid	169,911.38	91,347.2
		Insect Repellents	559,867.46	371,574.87
		Sunscreen	410,564.72	245,984.02
	Personal Accessories	Binoculars	2,214,888.28	756,112.83

The conditional formatting is applied to the Gross profit column even though the LowMedHigh column no longer appears in the report.

5. Close **IBM Cognos Viewer**, and leave **Report Studio** open for the next demo.

### Results:

You created a report that identifies the total revenue and gross profit generated in every country by each product type. You added prompts to let users customize this report by selecting high and low gross profit values for which to highlight data.

## Let Users Choose How to Filter Report Data

- Query macro prompts return different values to a query depending on the prompt option users select.

**Query Macro Prompt**

#prompt ('choose date', 'token', '[Order date] BETWEEN 2006-01-01 00:00:00 AND 2006-12-31 23:59:59')#

Use	Display
[Order date] BETWEEN 2006-01-01 00:00:00 AND 2006-01-01 23:59:59	All orders in 2006
Cast([Order date]),date)=2006-09-30	Last day 3 <sup>rd</sup> quarter
[Order date] in_range ?date_range?	Date range

**Static Choices for Query Macro Prompt**

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A macro is a fragment of code that you can insert into the Select statement of a query or into an expression.

In query macro prompts, everything between the # signs is replaced with the Use value returned when a user selects a prompt option. You can use query macro prompts when working with relational data or dimensionally modeled relational data.

Static choices present the user with prompt options that are not found in the data source.

It is important to know your database when creating the Use values. In the slide example, the second static choice casts Order date as a 'date' data type because in the database, the Order date item is stored as a Date & Time data type. If you do not cast it as 'date', you must specify the exact date and time of the order in the static choice.

The Name parameter, which is mandatory, specifies the name of the query macro prompt.

Be sure to use simple single quotes, and not Word style fancy quotes.

Use 'token' as the datatype parameter so that the macro accepts the Use value passed from the prompt without enclosing it in quotes in the query SQL statement.

**INTERACTION - Toolbar Emoticons > Raise Hand:** Ask participants, why is SQL syntax not dependant on the datasource

A: Cognos uses its own query engine to convert SQL to the proper data source syntax.

## Demo 2: Create a Prompt to Let Users Choose Between Different Filters


### Purpose:

You have been asked to create a report showing the order date, order number, and revenue for sales to all retailers. The report should let users choose entire year of 2006, a specific date of high retail activity in 2006, or for any date range of interest to the user. To provide users with these options, you will add a query macro prompt so users can choose which filter to apply to the report.

Server: localhost  
User/Password: brettonf/Education1!  
Studio: Report Studio  
Package: GO Data Warehouse (query)  
Report Type: List  
Folder: Sales and Marketing (query)  
Namespace: Sales (query)

### Task 1. Add items and a filter containing a query macro prompt.

1. In the **Insertable Objects** pane, add the following query items to the list report:
  - Time → Date
  - Sales order → Order number
  - Retailers → Retailer
  - Sales fact → Revenue

2. In the list, click the **Date** column, on the toolbar, click **Sort** , and then click **Ascending**.
3. Point to **Query Explorer**, and then click **Query1**.
4. Click the **Toolbox** tab, and then drag a **Filter** object to the **Detail Filters** pane.

You will create a query macro prompt that includes the name of the parameter (choose date), the data type (token), and a default prompt value ([Order date] BETWEEN 2006-01-01 00:00:00 AND 2006-12-31 23:59:59).

5. In the **Expression Definition** pane, create the expression as follows:  
**#prompt ('choose date', 'token', '[Date]BETWEEN 2006-01-01 00:00:00 AND 2006-12-31 23:59:59')#**

Hint: Select **Date** from the **Data Items** tab.

6. Validate the expression, and then click **OK** to close the dialog box.

You can now create a prompt page with a value prompt that uses the 'choose date' parameter you just created. You will create static choices for the prompt where the Use values are the SQL statements that are passed to the parameter.

## **Task 2. Create a prompt with static choices.**

1. Point to **Page Explorer**, click **Prompt Pages**, and then drag a **Page** object to the **Prompt Pages** pane.
2. Double-click **Prompt Page1**, and then from the **Insertable Objects** pane, drag a **Value Prompt** object to the work area.

3. In the **Prompt Wizard**, click **Use existing parameter**, in the list, select **choose date**, and then click **Finish**.
4. On the prompt page, click the **Value Prompt** object, and then in the **Properties**, pane double-click the **Static Choices** cell.
5. In the **Static Choices** dialog box, click **Add**.
6. In the **Use** box, type **[Date] BETWEEN 2006-01-01 00:00:00 AND 2006-12-31 23:59:59** in the **Display** box, type **All Orders in 2006** and then click **OK**.
7. Repeat steps 5 and 6 to add the following two static choices for the prompt:

Use	Display
<b>Cast([Date],date)=2006-12-15</b>	<b>December 15, 2006</b>
<b>[Date] in_range ?date_range?</b>	<b>Date range</b>

In the second option, you cast [Date] as a 'date' data type because in the GO Data Warehouse database the Date information is stored as 'date and time'. By converting this to 'date', you will retrieve every order made on the December 15th, 2006, regardless of what time the order was placed.

8. Click **OK**.

### **Task 3. Add a Date & Time Prompt and test the prompt.**

You will add a Date & Time Prompt object to the prompt page so that users can enter specific dates if they choose the Date range option in the value prompt.

1. From the **Toolbox** tab, drag a **Date & Time Prompt** object to the right of the **Value Prompt** object in the work area.
2. In the **Create a new parameter** box, type **date\_range** and then click **Finish**.

3. On the prompt page, click the **Date & Time** prompt object, and then in the **Properties** pane, change the **Range** property to **Yes**.

You will test the prompt to see whether the default date range you specified for this prompt (BETWEEN 2006-01-01 00:00:00 AND 2006-12-31 23:59:59) is used if you do not select a prompt value.

4. Run the report, and then on the prompt page, click **Finish**.

The report runs and appears in IBM Cognos Viewer. The first dates displayed are early in January 2006.

5. In the report, click **Bottom**.

The last dates contained in the report are near the end of December 2006. The query prompt macro is using the default prompt value you specified.

You will now test the prompt by selecting one of the prompt options.

6. From the **IBM Cognos Viewer** toolbar, at the top right, click **Run** to run the report again.

7. In the value prompt, click **December 15, 2006**, and then click **Finish**.

The report runs and appears in IBM Cognos Viewer. The report displays data for December 15, 2006.

You will now test the prompt by selecting a different prompt option.

8. From the **IBM Cognos Viewer** toolbar, click **Run** to run the report again.

9. In the value prompt list, click **Date range**, in the **From** prompt, select **May 1, 2006**, and then in the **To** prompt, select **May 31, 2006**.

10. Click **Finish**.

The results appear as follows:

Date	Order number	Retailer	Revenue
May 8, 2006	103576	Great Adventures	185,785.19
May 8, 2006	103581	Todo para el Golf, S.A. de C.V.	318,307.36
May 8, 2006	103601	The Marketplace	237,845.26
May 8, 2006	103605	Tamarack Outfitter Rentals	3,859.1
May 8, 2006	103607	Edward's Department Store	27,064.78
May 8, 2006	103610	I-wear Direct	45,934.56
May 8, 2006	103619	Nature Voyageurs	61,421.94
May 8, 2006	103625	The Sport Pros	254,232.43
May 8, 2006	103627	Extreme Outdoors	361,564.54

The beginning of the report contains data for early in May 2006. (The rows may not be in the same order as shown above.)

11. In the report, click **Bottom**.

The end of the report displays data for the end of May 2006.

12. Close **IBM Cognos Viewer**.

Leave Report Studio open for the next demo.

**Results:**

**You created a report displaying the order date, order number, and revenue for sales to all retailers. You used a query macro prompt to let users choose to view orders for the entire year of 2006, for December 15th, 2006, or for any date range of interest to the user.**

## Let Users Choose How to Sort Data

- You can create prompts that let users choose which data item to use to sort a report.

### Calculated Data Item Used to Sort Report Data

```
#prompt('sort by', 'token', '[Sales(query)].[Time].[Day of the week]')#
```

### Static Prompt Choices for the Sort by Parameter Created by this Calculated Data Item

Use	Display
[Sales(query)].[Sales order].[Order number]	Order number
[Sales(query)].[Time].[Day of Week]	Order day
[Sales(query)].[Employee by region].[Employee name]	Sales rep



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If you want to let users choose how to sort data, ensure none of the columns are sorted in the report layout.

If users can select only one data item with which to sort data, create one calculated data item. For multiple data items, create a calculated data item for each option.

**INTERACTION - Toolbar Emoticons > Raise Hand:** Ask participants, what the purposes of the “Use” and “Display” values are.

Use values are passed to the parameter when the user selects a display value.

Display values appear in the prompt at run time and help users select the appropriate option.



## Let Users Choose How to Sort Data (cont'd)

- You can create prompts that let users choose whether to sort numerical values in a report column in ascending or descending order.

Use	Display
1	Ascending
-1	Descendin

Create a prompt  
with static choices.

[Revenue]\*?Sort?

Add a Sort Key  
calculated data  
item.

Sort the Revenue  
column in  
ascending order.

To create a prompt that lets users choose whether numerical values are sorted in ascending or descending order, add a prompt to the report with two static choices: 1 and -1.

Add a calculated data item that multiplies the numerical values in the column you want to sort by either 1 or -1, depending on the prompt option users select.

Sort this calculated data item in ascending order.

## Demo 3: Create a Prompt to Let Users Choose How to Sort List Columns

### Purpose:

A manager wants to view information about individual sales orders. The manager wants to easily locate sales based on either order number, order date, or the representative who made the sale. You will create a list report with a prompt on the report page so the manager can choose the column with which to sort the report.

Server: localhost  
User/Password: brettonf/Education1!  
Studio: Report Studio  
Package: GO Data Warehouse (query)  
Report Type: List  
Folder: Sales and Marketing (query)  
Namespace: Sales (query)

### Task 1. Create a list with a prompt on the report page.

1. From the **Insertable Objects** pane, add the following query items to the list report:
  - Time → Day of the week
  - Sales order → Order number
  - Employee by region → Employee name
  - Sales fact → Revenue
2. In the list, click **Employee name** column, in the **Properties**, change the **Name** and **Label** to **Sales rep**.

3. Click the **Toolbox** tab, and then drag a **Block** object to the left of the list report to add a block object above the list object.
4. From the **Toolbox**, drag a **Value Prompt** object to the block you just added.
5. In the **Prompt Wizard**, in the **Create a new parameter** box, type **sort by**, and then click **Finish**.
6. From the **Toolbox** tab, and then drag a **Text Item** object to the left of the value prompt, and then type **Please choose a column to sort by:**.

## **Task 2. Add choices to the prompt.**

You will add static choices for the sort by prompt to let users choose to sort report data by order number, order date, or staff name.

1. In the work area, click the **Value Prompt** object, and then in the **Properties** pane, double-click the **Static Choices** cell.
2. In the **Static Choices** dialog box, click **Add**, in the **Use** box, type **[Sales (query)].[Sales order].[Order number]** and then in the **Display** box, type **Order number**
3. Click **OK** to close the dialog box.

4. Repeat steps 2 and 3 to create the following two options:

Use	Display
[Sales (query)].[Time].[Day of the week]	Order day
[Sales (query)].[Employee by region].[Employee name]	Sales rep

5. Click **OK** to close the **Static Choices** dialog box.
6. In the **Properties** pane, double-click the **Default Selections** cell.
7. Click the **Add** button, and in the edit box, type **[Sales (query)].[Time].[Day of the week]**.
8. Click **OK** twice.

You want to make this prompt optional.

9. With the **Value Prompt** object still selected, set the following properties:
- **Required = No**
  - **Auto-Submit = Yes**
  - **Select UI = Radio button group**

Once a user selects a prompt option you want the prompt to automatically submit the parameter value.

You will now add a calculated data item to the query to retrieve and sort data based on the sort by prompt option a user selects.

### Task 3. Add a calculated data item to the query.

1. Point to **Query Explorer**, and then click **Query1**.
2. In the **Insertable Objects** pane, click the **Toolbox** tab, and then drag a **Data Item** object to the **Data Items** pane.
3. In the **Expression Definition** pane, create the expression as follows:  
`#prompt('sort by', 'token', '[Sales (query)].[Time].[Day of the week]')#`  
 Day of the week is the default column on which to sort.
4. Validate the data item expression, and then click **OK** to close the dialog box.

### Task 4. Name and sort the calculated data item, add the data item as a property of the list, and test the prompt.

1. With the data item you just added selected, in the **Properties** pane, in the **Name** cell, type **Sort Key**, and then press **Enter**.
2. With the **Sort Key** data item selected, in the **Properties** pane, click the **Pre-Sort** cell, and then in the list, click **Sort ascending**.  
 To use the Sort Key data item to determine how data is sorted in the report layout, you must make the Sort Key data item a property of the List object.
3. Point to **Page Explorer**, and then click **Page1**.
4. Click the list **Container Selector** to select the entire list.
5. In the **Properties** pane, double-click the **Properties** cell, select the **Sort Key** check box, and then click **OK**.

6. From the toolbar click **Run Report**.

The result appears as shown below:

Please choose a column to sort by

☐ Order number  
☒ Order day  
☐ Sales rep

[Deselect](#)

Day of the week	Order number	Sales Rep	Revenue
2	100001	Charles Laurel	18,036.24
2	100002	Alexandre Pereira	58,828.44
2	100003	Alexandre Pereira	41,255.35
2	100004	Eduardo Guimarães	228,447.45
2	100005	Alexandre Pereira	71,237.12
2	100006	Eduardo Guimarães	35,015.7
2	100007	Audrey Lastman	94,859.1

The Day of the Week column is sorted in ascending order because this is specified in the Sort Key expression as the default column on which to sort.

7. Run the report two more times, choosing **Order number**, and then **Sales rep**.

The prompt works as expected.

8. Close **IBM Cognos Viewer**.

Leave Report Studio open for the next demo.

## Results:

**You created a list report with a prompt on the report page that lets users choose the column they want to use to sort the report.**

---

The results show a sort on the Day of the week and on Order number. This is just coincidental and should not be relied upon in future query results.

## Let Users Choose Which Objects Appear in Reports

- Create a list of custom options that will appear at runtime by creating static choices for the prompt.

### Prompt

Display Options
Crosstab
Chart

### Static Choices

Use	Display
Cr	Crosstab
Ch	Chart

**Boolean variable applied to the conditional block:**  
**?Display Options?='Crosstab'**

**When block value = 'Yes',  
 drag Crosstab to  
 conditional block**



**When block value = 'No',  
 drag Chart to  
 conditional block**



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 software**

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In this example, the user is prompted to choose between Crosstab or Chart to view the report. Static choices represent a list of prompt options presented to the user.

A conditional block is created with values that depend on the static choices the user selects in the prompt.

When the report is being created, the block value is set to Yes and the crosstab object is dragged to the conditional block. The block value is then set to No and the chart object is dragged to the conditional block.

Static Choices only apply to Search & Select and Value prompts.

If you want to give users two choices, use Boolean variable. If you want to give users more than two choices, use a string variable.

After creating a report with a conditional block, to view the objects contained in the conditional block for different values, view the page structure for the report page. To do this, from the View menu, click Page Structure.

**INTERACTION - Toolbar Emoticons > Raise Hand:** Ask participants, which variable should be used if only two choices will be offered.

What variable should be used for more than two choices?

## Demo 4: Create a Prompt to Let Users Select a Display Type

### Purpose:

The Marketing department has requested a report that shows the revenue generated for each product line by each order method. Some members of the department prefer a visual representation of the data, and some have requested the data in crosstab format. You will create a report that lets users choose the format they prefer.

Server:	localhost
User/Password:	brettonf/Education1!
Studio:	Report Studio
Package:	GO Data Warehouse (query)
Report Type:	Crosstab
Folder:	Sales and Marketing (query)
Namespace:	Sales (query)

### Task 1. Add a crosstab and a chart to the report.

1. In the **Insertable Objects** pane, add the following query items to the crosstab:
  - **Products** → **Product line** to **Columns**
  - **Order method** → **Order method type** to **Rows**
  - **Sales fact** → **Revenue** to **Measures**
2. From the **Toolbox** tab, drag a **Chart** object to the right of the crosstab, click the first chart, and then **OK**.


You want to add the same data to the chart.



3. Click the chart background to select the **Combination Chart** object, in the **Properties** pane, click the **Query** cell, and then in the list, click **Query1**.
4. Click the **Data Items** tab, add the data items as follows:
  - **Product line** to **Category (x-axis)**
  - **Order method type** to **Series**
  - **Revenue** to **Measure (y-axis)**

## **Task 2. Add a prompt to the report and add static choices for the prompt.**

You want users to choose either a crosstab or a chart at run time, so you will create a value prompt that gives users two display options.

1. Point to **Page Explorer** , and then click **Prompt Pages**.
2. From the **Insertable Objects** pane, drag a **Page** object to the **Prompt Pages** pane.
3. Double-click **Prompt Page1**, and then from the **Toolbox** tab, drag a **Value Prompt** object onto the prompt page.

The Prompt Wizard opens and loads any parameters contained in the report. In this case, the report has no parameters. You will create a parameter for this prompt.

4. In the **Create a new parameter** box, type **Display Options**, and then click **Finish**.

You will add two static choices for the prompt (Crosstab and Chart) to let users select a format in which to view data.

5. In the work area, click the **Value Prompt** object, and then in the **Properties** pane, double-click the **Static Choices** cell.
6. In the **Static Choices** dialog box, click **Add**, in the **Use** and **Display** boxes, type **Crosstab**, and then click **OK**.
7. Repeat step 6 to add a static choice with **Chart** as its **Use** and **Display** values.
8. Click **OK** to close the dialog box.

You will add a Conditional Blocks object and apply conditional formatting to this object to determine whether it will contain the chart or the crosstab.


### **Task 3. Add a conditional block and create a boolean variable.**

1. Point to **Page Explorer**, and then click **Page1**.
2. On the **Toolbox** tab, drag a **Conditional Blocks** object to the right of the chart to add the conditional blocks object below the chart.
3. Click the **Conditional Blocks** object you just added to select it, and then in the **Properties** pane, double-click the **Block Variable** cell.

You will create a Boolean variable that uses the Display Options parameter so that the block displays differently depending on whether the user selects the "Crosstab" or "Chart" prompt option.

4. In the **Variable** list, click **New boolean variable**, in the **Name** box, type **DisplayVariable** and then click **OK**.

You will create an expression that specifies that when users select the Crosstab prompt option, the Yes condition from the Boolean variable is applied to the conditional block.

5. In the **Available Components** pane, click the **Parameters**  tab, and then drag the **Display Options** parameter to the **Expression Definition** pane.
6. At the end of the expression, type **= 'Crosstab'**.
7. In the Report Expression dialog box, click **Validate**, and then after the expression is validated without any errors, click **OK** twice to close each dialog box.

#### **Task 4. Specify how the Conditional Block values will display.**

1. Ensure that the **Conditional Blocks** object is selected, in the **Properties** pane, click the **Current Block** cell, and then in the list click **Yes**.

In task 3, you specified that when users select the Crosstab prompt option, the Yes value is applied to the Conditional Blocks object. Therefore, with the Yes value selected, you will drag the Crosstab object to the Conditional Blocks.

2. Click the crosstab **Container Selector** to select the entire crosstab.
3. Drag the crosstab to the **Conditional Blocks** object.

- Click the **Conditional Blocks** object to select it, in the **Properties** pane, click the **Current Block** cell, and then in the list click **No**.

In Task 3, you specified that when users select the Chart prompt option, the No value is applied to the Conditional Block object. Therefore, with the No value selected, you will drag the Chart object to the Conditional Block.

- Click the chart background to select the **Combination Chart** object, and then drag the chart to the **Conditional Blocks** object.
- On the toolbar, click **Run Report**, in the **Display Options** list, click **Crosstab**, and then click **Finish**.

The results appear as follows:

Revenue	Camping Equipment	Golf Equipment	Mountaineering Equipment	Outdoor Protection	Personal Accessories
E-mail	75,899,094.63	47,933,933.16	7,476,451.96	5,882,477.87	42,651,086.54
Fax	23,054,398.48	15,241,303.27	11,848,370.08	1,966,484.72	17,962,985.46
Mail	21,348,644.09	12,693,287.48	3,531,658.66	2,098,391.71	6,419,357.03
Sales visit	168,611,961.87	39,240,918.73	44,616,626.64	10,029,884.31	47,695,442.45
Special	12,388,989.44	4,964,762.97	3,674,008.11	1,136,931.23	5,186,628.5
Telephone	153,894,892.13	78,730,112.65	22,910,827.4	11,928,314.52	73,521,634.36
Web	1,133,838,683.39	527,607,049.63	315,602,190.05	42,951,811.89	1,692,236,173.44

Only the crosstab appears in the report.

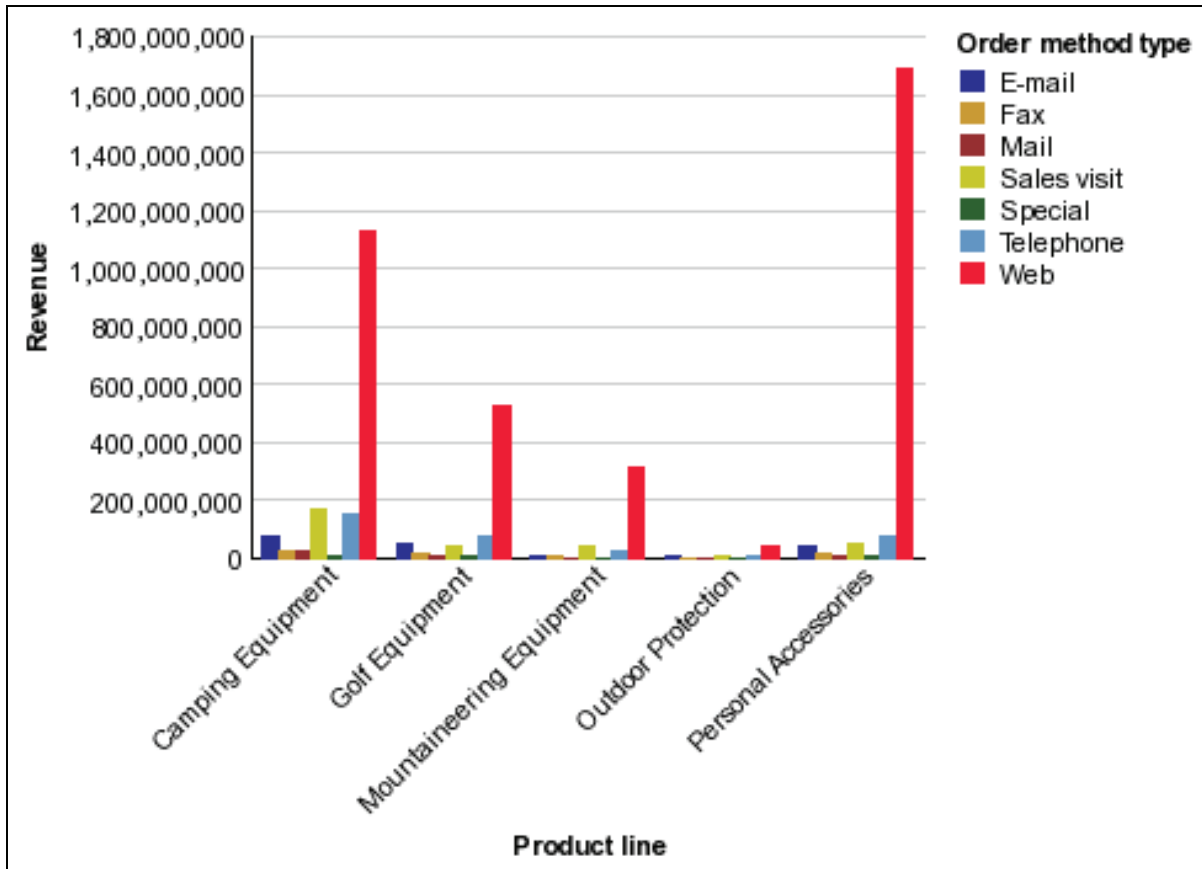
- On the **IBM Cognos Viewer** toolbar, click **Run**.

You can conditionally render many objects, including Blocks, Text Items, Lists, List columns, Crosstabs, Charts, Tables, Repeaters, Repeater Tables, Repeater Table Cells, and images. For a complete list, see the Report Studio Object and Property Reference section of the *Report Studio User Guide*.

**INTERACTION - Raise Hand:** What further formatting could be done to the prompt to make it more efficient?

8. In the **Display Options** list, click **Chart** and then click **Finish**.

The result appears as shown below:



9. Close **IBM Cognos Viewer**

Leave Report Studio open for the workshop.

### Results:

**You created a report that lets users choose whether to view data in chart or crosstab format. To create this report, you added a prompt to the report, added static choices for this prompt, and then added a Conditional Block object to the report. You created a variable for the Conditional Block object with values that depend on the static prompt choice that users select. You specified that different report objects display in the Conditional Block object depending on the value applied.**

## Summary

- At the end of this module, you should be able to:
  - control report displays using prompts
  - specify conditional formatting values using prompts
  - specify conditional rendering of objects based on prompts selection
  - create sorted and filtered reports based on prompt selection

**INTERACTION - Check Sticker:** Check each objective as it is summarized.

## Workshop 1: Create a Prompt Letting Users Choose Which Columns to Use to Sort Data (Optional)

A marketing manager has requested a report showing the sales revenue generated for each retailer. She wants to be able to quickly display either the retailers who generate the most or the least revenue so she can create specific marketing campaigns for each. You will create a list report that contains a prompt that lets users choose to sort revenue values in either ascending or descending order.

To accomplish this:

- Create a list report with using the GO Data Warehouse (query) package, Sales and Marketing (query), Sales (query). Add Retailer and Revenue.
- Add a block to the Revenue column title cell, to the right of the text. Add a value prompt and name the parameter: sort.
- Create static choices for the value prompt for Ascending (use:1) and Descending (use:-1).
- Change prompt properties to not required, auto-submit and hide adornments. Add a default selection of 1, for ascending.
- Add a calculated data item named sort, with pre-sort set to ascending. Add the sort item as a property of the list object.
- Run the report, and then view the ascending results.
- Run the report, select Descending, and then view the descending results.

For more detailed information outlined as tasks, see the Task Table on the next page.

For the final results, see the Workshop Results section that follows the Task Table.

## Workshop 1: Task Table

### Task 1: Create a list with a prompt on the report page.

Where to Work	Hints
GO Data Warehouse (query) package, Sales and Marketing (query) folder, Sale (query) namespace	<ul style="list-style-type: none"> <li>• Add the following query items to the list report: Retailer name, Revenue.</li> </ul>
Toolbox	<ul style="list-style-type: none"> <li>• Unlock the list object, and then drag a Block to the right of the Revenue column title.</li> <li>• Drag a Value Prompt, named sort to the Block.</li> </ul>

### Task 2: Create static choices for the prompt.

Where to Work	Hints
Page 1, Properties - Value Prompt	<ul style="list-style-type: none"> <li>• Static Choices: <ul style="list-style-type: none"> <li>• Use:1, Display: Ascending;</li> <li>• Use:2, Display: Descending</li> </ul> </li> </ul>
Properties pane	<ul style="list-style-type: none"> <li>• Required = No</li> <li>• Auto-Submit = Yes</li> <li>• Hide Adornments = Yes</li> <li>• Default Selections = 1</li> </ul>



<b>Task 3: Add a calculated data item to the query and add this item as a property of the list object.</b>	
<b>Where to Work</b>	<b>Where to Work</b>
Query Explorer, Query1/Toolbox	Query Explorer, Query1/Toolbox
Properties	Properties
Page Explorer, Page1	Page Explorer, Page1
<b>Task 4: Test the Prompt.</b>	
<b>Where to Work</b>	<b>Hints</b>
Toolbar	<ul style="list-style-type: none"> <li>• Run the report</li> </ul>
IBM Cognos Viewer	<ul style="list-style-type: none"> <li>• Re-run the report, choose Descending.</li> </ul>

If you need more information to complete a task, see the Step-by-Step Instructions at the end of the workshop.

## Workshop 1: Results

A section of the results appear as follows, when sorted in ascending order:

Retailer	Revenue
	Ascending
Hakata Tozanyouhin Senmonten	\$20,856.64
Benriya Net	\$22,223.66
Vista Group	\$25,935.32
Boutique L'Aventure	\$63,704.00
Sport-Lagerhalle	\$65,547.80
The Wilderness Depot	\$87,584.60
Zelte und mehr	\$90,782.84
Reisemarkt	\$93,169.80
Terra Nova Camping Rentals	\$100,630.68
København Storecenter	\$110,992.70

A section of the results appear as follows, when sorted in descending order:

Retailer	Revenue
	Descending
Grand choix	\$72,616,954.84
Chen Yu Enterprise Co.,	\$71,970,453.88
VIP Department Stores	\$50,813,492.98
Articulos de Campismo El Aquila, S.A. de C.V.	\$46,093,027.97
Leisure Land	\$45,381,496.34
Extreme Outdoors	\$43,545,914.33
Naranco de Bulnes	\$41,273,432.20
NonSoloNeve	\$40,224,349.19
The Marketplace	\$39,424,203.54
Ocio y Aventura	\$39,182,262.76
Lan King Sports Co., LTD.	\$38,708,815.75

## Workshop 1: Step-by-Step Instructions


Server: localhost  
 User/Password: bretttonf/Education1!  
 Studio: Report Studio  
 Package: GO Data Warehouse (query)  
 Report Type: List  
 Folder: Sales and Marketing (query)  
 Namespace: Sales (query)

### Task 1. Create a list with a prompt on the report page.

1. In the **Insertable Objects** pane, from the **Source** tab, add the following query items to the list report:

- **Retailers → Retailer**
- **Sales fact → Revenue**

You will add a prompt to the Revenue column title cell. You will first add a block to the cell and will then add the value prompt to the block.


2. On the toolbar, click **Unlock (currently locked)** .
3. In the **Insertable Objects** pane, click the **Toolbox** tab, and then drag a **Block** object to the **Revenue** column title cell to the right of the **Revenue** text.
4. From the **Insertable Objects** pane, drag a **Value Prompt** object to the block object you just added.
5. In the **Create a new parameter** box, type **sort**, and then click **Finish**.

## Task 2. Create static choices for the prompt.

You will create two static choices to let users choose whether to sort the Revenue column in ascending or descending order.

1. In the work area, click the **Value Prompt** object, and then in the **Properties** pane, double-click the **Static Choices** cell.
2. In the **Static Choices** dialog box, click **Add**.
3. In the **Use** box, type **1**, in the **Display** box, type **Ascending** and then click **OK**.
4. In the **Static Choices** dialog box, click **Add**.
5. In the **Use** box, type **-1**, in the **Display** box, type **Descending** and then click **OK** twice to close each dialog box.
6. In the **Properties** pane, change the **Required** property to **No**, change the **Auto-Submit** property to **Yes**, and then change the **Hide Adornments** property to **Yes**.

When the report runs you want the Revenue column to be sorted in ascending order, so you will create a default selection for the prompt.

7. In the **Properties** pane, double-click the **Default Selections** cell, in the **Default Selections** dialog box, click **Add**, type **1**, and then click **OK** twice to close each dialog box.
8. On the toolbar, click **Lock (currently unlocked)** .

### **Task 3. Add a calculated data item to the query and add this item as a property of the list object.**

You will add a calculated data item that can be used to sort the Revenue column depending on the prompt choice users select.

1. Point to **Query Explorer**, and then click **Query1**.
2. In the **Insertable Objects** pane, click the **Toolbox** tab, and then drag a **Data Item** object to the **Data Items** pane.
3. In the **Expression Definition** pane, create the following expression:

**[Revenue]\*?sort?**

Hint: Select **[Revenue]** from the **Data Items** tab and **sort** from the **Parameters** tab.

4. Validate the data item expression, and then click **OK**.
5. With the calculated data item selected, in the **Properties** pane, change the **Name** property for the item to **Sort Key**, and then change the **Pre-Sort** property to **Sort ascending**.

To use the Sort Key data item to determine how data is sorted in the report layout, you must make the Sort Key data item a property of the List object.

6. Point to **Page Explorer**, click **Page1**, click the list **Container Selector**, and then click the **Properties** cell
7. Select the **Sort Key** check box, and then click **OK**
8. Click the **Revenue** list column body, and then double-click the **Data Format** property cell.
9. Click on **Currency** from the drop down list, and then click on **(USD)-United State of America, dollar**.
10. Change **No. of Decimal Places** to **2** and then click **OK**.

#### **Task 4. Test the prompt.**

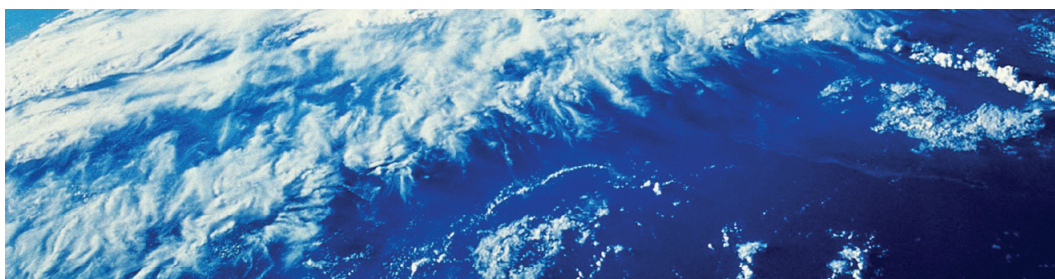
1. From the toolbar click **Run Report**.  
The Revenue column is sorted in ascending order. You can see that Hakata Tozanyouhin Senmonten was the Retailer that generated the least amount of Revenue.
2. In the prompt, click **Descending**.  
The Revenue column is sorted in descending order. You can see that Grand Choix generated the most revenue.
3. Close **IBM Cognos Viewer**, close **Report Studio**, without saving changes, and then close **Internet Explorer**.



---

# **Enhance User Interaction with HTML**

IBM Cognos BI



**Business Analytics**

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## Objectives

- At the end of this module, you should be able to:
  - create tooltips that clarify report data
  - create a popup window that contains prompts
  - send emails using links in a report

---

If you intend to teach this module, students should be familiar with:

- Report Studio
- Filters
- Prompts
- The IBM Cognos BI Query Model
- IBM Cognos Connection

Suggested modules to reference:

- Introduction to the Reporting Application
- Create List Reports
- Focus Reports Using Filters
- Create Query Models
- IBM Cognos Connection for Consumers (v10.1) WBT

**INTERACTION - Star Sticker:** Star each objective as it is presented.

## Create Interactive Reports Using HTML

- Add HTML items to your report to control the behavior of elements of the report.
- HTML items let you design interactive reports so users can control what they see, or restrict selections they can make.

An HTML item adds a container in which you can insert HTML code, such as a link to a multimedia file, or JavaScript.

It is important to consider your audience and how the report will be rendered, as HTML Items will only work when the report is rendered in HTML.

If you want to use HTML items with other report outputs (such as PDF), you can use a Rich Text Item.

Functionality for the HTML item can be controlled using Capabilities/Report Studio/HTML Items in Report.

---

Important! Please advise the students that IBM Cognos reserves the right to change the HTML code at anytime. This may mean some of your reports that use HTML Items will break. Use HTML Items with caution.

The HTML layout object can be anything your browser will execute, such as links, images, multi-media or JavaScript.

**INTERACTION - Toolbar Emoticons > Raise Hand:** Ask participants, if anyone has had experience with web development, HTML or Java scripting.

## Include Additional Information with Tooltips

- You can embed HTML code in your report that will create tooltips in selected areas of your layout.
- Tooltips can link to query data and display information not included in the layout.

**Summary of 2006 Product Sales and Growth**

Product	2006 Revenue	Growth
Aloe Relief	\$101,812.41	---
Astro Pilot	\$13,072,475.00	139.40%
Auto Pilot	\$3,388,230.00	*** no prior data ***
Bear Edge	\$3,960,860.01	46.57%
Bear Survival Edge	\$3,320,876.50	59.34%

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You can create a tooltip when you want users to have access to detail that you do not want to display directly in the report layout.

You can create a generic tooltip creation function that accepts a string of text as a parameter and uses it to create the tooltip. This lets you create HTML code out of report expressions and embed tooltips in the report data.

A tooltip is a small window of text that appears beside the mouse pointer when it is held over a specific area of the screen.

It is also possible to create tooltips using the `<p></p>` tags in HTML, though it is not possible to apply any formatting to the tooltip window.

`<Span>` tags are also supported with rich text items.

Tooltips are already available on charts by setting the Tooltips property to Yes. This technique is suitable for list and crosstab reports.

Depending on the content of your HTML item, set the appropriate source type. For example, for a static HTML item, use Text.

## Demo 1: Add Tooltips to a Report

### Purpose:

Management would like a Revenue Growth report to include additional information such as product descriptions and how growth percentages are calculated. This information is only supplementary, however, and should not be added directly to the report layout. The solution is to include this information in tooltips, which will display at the appropriate points in the report.

Server: localhost  
 User/Password: brettonf/Education1!  
 Studio: Report Studio  
 Package: GO Data Warehouse (query)  
 Report Type: List  
 Folder: Sales and Marketing (query)  
 Namespace: Sales (query)

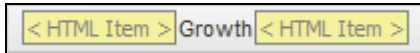
### Task 1. Open an existing report from the clipboard.

1. From the **Start** menu, point to **All Programs/Accessories**, then click **Notepad**.  
 Notepad opens.
2. From the **File** menu, click **Open**.
3. In the **File name** box, navigate to **C:\Edcognos\B5159\06-Enhance User Interaction with HTML**, click **Demo 1\_ Enhance User Interactions with HTML\_Start.txt**, and then click **Open**.
4. From the **Edit** menu, click **Select All**, and then from the **Edit** menu, click **Copy**.
5. In **Report Studio**, from the **Tools** menu, click **Open Report from Clipboard**.  
 The Revenue Growth report appears.  
 You can now add a tooltip to your report.

## Task 2. Create a static text tooltip.

1. On the toolbar, click **Unlock (currently locked)** to unlock the cells of the report.
2. In the **Insertable Objects** pane, from the **Toolbox** tab drag **HTML Item** to the left of the **Growth** column header.
3. Drag an **HTML Item** to the right of the **Growth** column header.

The Growth title now appears between two HTML Items, as shown below:



4. Double-click the **HTML Item** to the left of the **Growth** column header.  
You can now copy the HTML code you need here from a text file in Notepad.
5. Return to **Notepad**, and then from the **File** menu, click **Open**.
6. In the **File name** box, click **Demo 1\_Enhance User Interaction with HTML\_Static Tooltip.txt**, and then click **Open**.

The following HTML code appears in Notepad:

```
<span title="Growth = (Current Year Revenue - Prior Year Revenue)/Prior Year Revenue" >
```

7. From the **Edit** menu, click **Select All**, and then from the **Edit** menu, click **Copy**.
8. Return to **Report Studio**, and then press **Ctrl+V** to paste the HTML code from **Notepad** into the text box.
9. Click **OK**, and then double-click the **HTML Item** to the right of the **Growth** title.
10. In the **HTML** dialog box, type **</span>** and then click **OK**.
11. Run the report, in the **Year** box, type **2006**, and then click **OK**.

12. In **IBM Cognos Viewer**, move the mouse pointer over the **Growth** column header.


After the mouse is still for a moment, the tooltip you created appears beside the pointer, as shown below:

<b>Summary of 2006 Product Sales and Growth</b>		
Product	2006 Revenue	Growth
Aloe Relief	\$101,812.41	Growth = (Current Year Revenue - Prior Year Revenue)/Prior Year Revenue
Astro Pilot	\$13,072,475.00	
Auto Pilot	\$3,388,230.00	*** no prior data ***

13. Close **IBM Cognos Viewer**.

You will now create a tooltip that displays the appropriate product description when the mouse pointer hovers over a Product. You need to add the Description query item to our list, and then create an HTML Item that uses a report expression to reference the required data from the query.

### **Task 3. Create a tooltip from a report expression.**

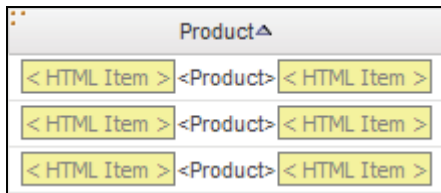
1. On the **Explorer** bar, point to **Query Explorer** , and then click **Query1**.
2. In the **Insertable Objects** pane, ensure the **Source** tab is selected, and then from the **Products** query subject, drag **Product description** into the **Data Items** pane.
3. Point to **Page Explorer**, and then click **Page1**.
4. Click on the list **Container Selector** to select the entire list.
5. In the **Properties** pane, double-click the **Properties** cell, select the **Product Description** check box, and then click **OK**.

6. In the **Insertable Objects** pane, click the **Toolbox** tab, and then drag an **HTML Item** into the **Product** column, to the left of the first **Product** data item.

The HTML Item appears beside all three data items.

7. Drag an **HTML Item** to the right of the first **Product** data item in the **Product** column.

All three Product query items in the column now appear between two HTML Items as shown below:



8. Click the **HTML Item** to the left of the **Product** data item.
  9. In the **Properties** pane, below **HTML Source**, in **Source Type** cell, click **Report Expression**, and then double-click the **Report Expression** cell.
- You can now copy the HTML code you need here from a text file in Notepad.
10. Return to **Notepad**, and open the **Demo 1\_Enhance User Interaction with HTML\_Report Exp Tooltip.txt** file.

The following HTML code appears in Notepad:

```
'<span title="" + [Product description] + "">'
```

11. Copy all of the contents to the clipboard, return to **Report Studio**, and then press **Ctrl+V** to paste the HTML code into the **Expression Definition** box.
12. In the **Report Expression** dialog box, click **Validate**, when prompted, enter **2006**, and then after the expression is validated without any errors, click **OK**.
13. Double-click the **HTML Item** to the right of the **Product** query item.
14. In the **HTML** dialog box, type **</span>**, and then click **OK**.

---

HTML items are not case sensitive.

## Task 4. Test the tooltip.

1. Run the report, in the **Year** box, type **2006**, and then click **OK**.
2. Point to **Aloe Relief** in the first row of the **Product** column.

After the mouse is still for a moment, the tooltip you created appears beside the pointer, as shown below:

Summary of 2006 Product Sales and Growth		
Product	2006 Revenue	Growth
Aloe Relief	\$101,812.41	-43.77%
Astro Pilot	Perfect for minor burns and sunburn, the aloe vera provides quick relief.	
Auto Pilot	\$3,388,230.00	*** no prior data ***

3. Point to **Bear Edge** in the fourth row of the **Product** column.

The tooltip now displays the description for this product. When Report Studio created the HTML version of this report, it created a copy of the tooltip code for every row in the Product column. Each instance of the code passes the Description query item related to the Product to the generic tooltip function.

4. Close **IBM Cognos Viewer**.

You will now create another tooltip in the Growth column that will display the specific data used to calculate each percentage. When the user hovers over a growth figure, the tooltip will display the related data. You can build this tooltip by creating a new data item in our query, and then building HTML code using this data item.



## Task 5. Create a tooltip from a data item.

1. Point to **Query Explorer**, and then click **Query1**.
2. In the **Insertable Objects** pane, click the **Toolbox** tab, and then drag a **Data Item** into the **Data Items** box.

The Data Item Expression dialog box appears.

3. Return to **Notepad**, and open the **Demo 1\_Enhance User Interaction with HTML\_Query Item Tooltip.txt** file.

The following HTML code appears in Notepad:

```
'<span title="Growth is calculated as <<(' + cast(([Order year_Prompt]) as varchar(20)) + ' Revenue ($' + cast([Y2 Revenue]) as varchar(20)) + ') - ' + cast([Order year_Prompt]-1 as varchar(20)) + ' Revenue ($' + cast([Y1 Revenue]) as varchar(20)) + ') / ' + cast([Order year_Prompt]-1 as varchar(20)) + ' Revenue ($' + cast([Y1 Revenue]) as varchar(20)) + '>>" > '
```

4. From the **Edit** menu, click **Select All**, and then from the **Edit** menu, click **Copy**.
5. In **Report Studio**, press **Ctrl+V** to paste the HTML code into the **Expression Definition** box.

This data item references the revenue data from both the current and prior year, as well as the order year specified in the prompt. The data is arranged inside a string of text. You can display this string inside a tooltip to show the detailed data used to calculate each growth percentage.

6. Click **Validate** and then click **OK**.
7. In the **Properties** pane, change the **Name** property to **Growth\_ToolTip** and then press **Enter**.

8. Point to **Page Explorer**, and then click **Page1**.
9. In the **Insertable Objects** pane, ensure that the **Toolbox** tab is selected, and then drag an **HTML Item** into the **Growth** column, to the left of the first **Growth** data item.

An HTML Item appears beside all three data items in the Growth column.

10. Drag an **HTML Item** to the right of the first **Growth** query item in the **Growth** column.

The result appears as shown below:

< HTML Item >	<Growth>	< HTML Item >
< HTML Item >	<Growth>	< HTML Item >
< HTML Item >	<Growth>	< HTML Item >

11. Click the **HTML Item** to the left of the **Growth** query item, in the **Properties** pane, below **HTML Source**, click **Source Type**, and then in the list, click **Data Item Value**, and then for **Data Item Value** in the list, click **Growth\_ToolTip**.
12. Double-click the **HTML Item** to the right of the **Growth** data item, in the **HTML** dialog box, type **</span>**, and then click **OK**.
13. On the toolbar, click **Lock (currently unlocked)** to lock the cells of the report.

## Task 6. Test the tooltip.

1. Run the report, in the **Current year** box, type **2006**, and then click **OK**.
2. In **IBM Cognos Viewer**, move the mouse pointer over **–43.77%** in the first row of the **Growth** column.

3. Move the mouse pointer over **139.40%** in the second row of the **Growth** column.

After the mouse is still for a moment, the tooltip you created appears beside the pointer as shown below:

<b>Summary of 2006 Product Sales and Growth</b>		
Product	2006 Revenue	Growth
Aloe Relief	\$101,812.41	-43.77%
Astro Pilot	\$13,072,475.00	139.40%
Auto Pilot	\$3,388,230.00	*** no prior
Bear Edge	\$3,960,860.01	4
Bear Survival Edge	\$3,320,876.50	59.34%

Growth is calculated as  $((2006 \text{ Revenue } (\$13072475.00) - 2006 \text{ Revenue } (\$5460410.00)) / 2005 \text{ Revenue } (\$5460410.00)) >>$

The tooltip now displays the data used to calculate this growth percentage. When Report Studio created the HTML version of this report, it created a copy of the tooltip code for every row in the Growth column. Each instance of the code referenced the Growth\_ToolTip data item and passed the content of this item to the generic tooltip function.

4. Close **IBM Cognos Viewer**.

Leave Report Studio open for the next demo.

## Results:

**You created tooltips in our report using HTML items. You added tooltips that described the details of our growth statistic both in abstract terms and with the specific details for each product, as well as a tooltip that displayed descriptions for each product.**

## Create a Prompt Popup Window

- You can create a group of prompts that can be opened or closed when the user filters the report again.

**The list is filtered when the prompt options are submitted with the Finish button.**

[search]

Year	Month	Product name	Revenue
2006	April	Cat Eye	\$1,234,567.89

Enter Month: April  
 Enter Year: 2006  
 Select a Product: Cat Eye  
 Finish

**The prompt popup window can be opened, closed and dragged to a different location.**

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You can use java script to make your reports more dynamic. Javascript is used to define objects in the report that will act as a popup window containing prompts. Additional javascript containing functions is included to control the behavior of the popup window.

**INTERACTION - Whiteboard:** Ask participants to list possible advantages to presenting prompts as popup windows. List all ideas on the whiteboard.

## Demo 2: Create a Prompt Popup Window

### Purpose:

Through a discussion with report consumers, you define a need for a report to be filtered frequently with different data items. The users do not want to have to navigate between a prompt page and a report page. However, they do not want the prompts on the report page. Using HTML items containing javascript, you will create a prompt popup window that can be opened and closed as necessary.

Server: localhost  
 User/Password: brettanf/Education1!  
 Studio: Report Studio  
 Package: GO Data Warehouse (query)  
 Report Type: List  
 Folder: Sales and Marketing (query)  
 Namespace: Sales (query)

### Task 1. Open a list report and create a block of prompts.

1. In **Report Studio**, click **File**, **Open**, and navigate to **Public Folders\B5159\06\_ Enhance User Interaction with HTML\Demo 2 Start**, and then click **Open**.  
 You will build several prompts, organized in a table, and contained in a block above the list.
2. From the **Toolbox** tab, drag a **Block** above the list, and then drag a **Table** to the block with **2** columns and **5** rows.
3. Ctrl+click the left and right table cells of the first row.

---

Depending on time, this demo can be presented as an instructor only demo.

4. In the **Properties** pane, under **Color & Background**, double-click **Background Color**, click **Custom Color**, clear the **Hexadecimal values** check box, and then enter the following:
  - Red: **191**
  - Green: **210**
  - Blue: **226**
5. Click **OK**.
6. From the **Toolbox** tab, drag a **Text Box Prompt** to the second column, second cell.
7. In the **Create a new parameter** box, type **p\_Year**, and then click **Next**.
8. Beside **Package item**, click the ellipsis, expand **Sales and Marketing (query)**, expand **Sales (query)**, and then expand **Time**.
9. Click **Year**, click **OK**, and then click **Finish**.
10. Click the new text box prompt, and then in **Properties** pane, set the **Default Selections** property to **2007**.
11. Repeat steps 5 to 9, using the following information:

Prompt Type	<b>Text box prompt</b>	<b>**Value prompt</b> (on the <b>Create Filter</b> page, be sure to click <b>Next</b> , then <b>Finish</b> )
Location	<b>Right column, third row</b>	<b>Right column, fourth row</b>
Parameter name	<b>p_Month</b>	<b>p_Product</b>
Package item	<b>Time → Month</b>	<b>Products → Product</b>
Default Selections	<b>March</b>	<b>Auto Pilot</b>

12. Drag a **Prompt Button** to the left column, fifth row, in the **Properties** pane, under **General**, click the list beside **Type** and then click **Finish**.
13. From the **Toolbox** tab, drag a **Text Item** into the second, third, and fourth rows of the left column of the table.
14. Enter the text for each so it appears as follows:

15. From the toolbar click **Run Report**.

The results appear as follows:

Year	Month	Product	Revenue
2007	March	Auto Pilot	307,380

You can see the prompts with the filtered list below.

16. Close **IBM Cognos Viewer**.

## Task 2. Create HTML Items to define the popup prompt window.

You will add an HTML item to the beginning and the end of the table containing the prompts. These HTML items will define the table area as a popup box containing the prompts.

1. From the **Toolbox** tab, drag an **HTML Item** to left of the table, and then drag another **HTML Item** to the right of the table.
2. From the **Start** menu, navigate to **All Programs/Accessories**, and then click **Notepad**.
3. Open the **C:\Edcognos\B5159\06-Enhance\_User\_Interaction\_with\_HTML\Demo 2\_Enhance User Interactions with HTML\_PopUpStart.txt** file.
4. From the **Edit** menu, click **Select All**, and then from the **Edit** menu, click **Copy**.
5. In **Report Studio**, double-click the **HTML Item** at the beginning of the table and press **Ctrl+V** to paste the HTML code into the text box.

The results appear as follows:

```
<div id="popUp1" style="position:absolute; z-index:3; background:
#FFFFFF;">
<div style="position: relative; left: -3px; top: -3px;">
<div style="position: absolute; height:1px; width:100%; cursor:move;"
onmousedown="javascript:engage('popUp1');"
></div>
```

6. Return to **Notepad** and open the **C:\Edcognos\ B5159\06-Enhance\_User\_Interaction\_with\_HTML \Demo 2\_Enhance User Interactions with HTML\_PopUpEnd.txt** file.
7. From the **Edit** menu, click **Select All**, and then from the **Edit** menu, click **Copy**.




8. In **Report Studio**, double-click the **HTML Item** at the end of the table and press **Ctrl+V** to paste the HTML code into the text box.

The results appear as follows:

```
</DIV></DIV>
<script type="text/javascript">
popUp("popUp1");
</script>
```

9. From the toolbar click **Run Report**.

The results appear as follows:



You can only see the prompts. The filtered list is hidden by the position of the block containing the prompts.

10. Close **IBM Cognos Viewer**.

### **Task 3. Create HTML Items to control the open and close of the popup prompt window.**

You will add a Search link to make the prompt box visible and a link to close the prompt box. You will then add the functions that control the behavior of the box.

1. Drag an **HTML Item** to the left of the block in the page header.
2. Return to **Notepad** and open the **C:\Edcognos\B5159\06-Enhance\_User\_Interaction\_with\_HTML\Demo 2\_Enhance User Interactions with HTML\_SearchButton.txt** file.

3. From the **Edit** menu, click **Select All**, and then from the **Edit** menu, click **Copy**.
4. In **Report Studio**, double-click the **HTML Item** to the left of the block in the page header and paste the HTML code into the text box.

The results appear as follows:

```
<a style="text-decoration:none;" title="Search"
href="javascript:void(0);" onclick="popUp('popUp1');">[search]</a>
```

5. From the **Toolbox** tab, drag an **HTML Item** to the top table row, right cell.
6. Click the top row, right cell, and then click **Right**.
7. Return to **Notepad** and open the **C:\Edcognos\ B5159\06-Enhance\_User\_Interaction\_with\_HTML \Demo 2\_Enhance User Interactions with HTML\_CloseButton.txt** file.
8. From the **Edit** menu, click **Select All**, and then from the **Edit** menu, click **Copy**.
9. In **Report Studio**, double-click the **HTML Item** in the top right cell and paste the HTML code into the text box.

The results appear as follows:

```
<a title="Close" href="javascript:void(0);"
onclick="popUp('popUp1');" style="text-decoration:none;">[x]</a>
```

10. From the toolbar click **Run Report**.

The results appear as follows:

You can see the [search] and the [x] buttons but they are not functioning.

11. Close **IBM Cognos Viewer**.

#### **Task 4. Create HTML Items to control the behavior of the popup prompt window.**

1. From the **Toolbox** tab, drag two **HTML Items** to the top left cell of the table.
2. Return to **Notepad** and open the **C:\Edcognos\ B5159\06-Enhance\_User\_Interaction\_with\_HTML \Demo 2\_Enhance User Interactions with HTML\_DragFunctions.txt** file.
3. From the **Edit** menu, click **Select All**, and then from the **Edit** menu, click **Copy**.

4. In **Report Studio**, double-click the first **HTML Item** at the top left cell of the table and paste the HTML code into the text box.

These functions control the dragging of the pop up window, the placement of the window, and its release after the drag mouse movement is complete..

5. Return to **Notepad** and open the **C:\Edcognos\ B5159\06-Enhance\_User\_Interaction\_with\_HTML \Demo 2\_Enhance User Interactions with HTML\_PopUp\_ShowHide.txt** file.
6. From the **Edit** menu, click **Select All**, and then from the **Edit** menu, click **Copy**.
7. In **Report Studio**, double-click second **HTML Item** at the top left cell and paste the HTML code into the text box.
8. Run the report, and then click **[search]**.

The prompt popup window appears.
9. Click and drag the blue colored bar at the top of the window.

The window can be dragged around inside the IBM Cognos Viewer window.

10. In the prompt window, type the year as **2006**, the month as **April**, and select the **Cat Eye** product.

Before you click Finish, the results appear as follows:

[\[search\]](#)

Year	Month	Product	Revenue
2007	March	Auto Pilot	307,380

Enter year:

Enter Month:

Select a Product:

Finish

\*

\*

\*

11. Click **Finish**.

The prompt window closes and the newly filtered list appears.

Leave Report Studio open for the workshop.

### Results:

**You created a report with a prompt popup window that can be opened and closed as necessary.**

## Send Emails Using Links in a Report

- You can replace a data item with an HTML item in order to create a link that opens an email when you click it in the report.

Email address     Text that appears as  
a link in the report



`'<a href="mailto:' + [Email] + '">' + [Staff name] + '</a>'`

The query must include the item you want to appear as a link in the report (such as Staff name), and the query item containing the email addresses of the recipients.

Unlock the report, cut the Staff name query item out of the column, and then add an HTML Item to the column instead.

Modify the Report Expression of the HTML Item to open an email window, specify what to display in the To box of the email, and what item will appear as a link in the report.

## Summary

- At the end of this module, you should be able to:
  - create tooltips that clarify report data
  - create a popup window that contains prompts
  - send emails using links in a report

**INTERACTION - Check Sticker:** Check each objective as it is summarized.

## Workshop 1: Send Emails Using Links in a Report

Management has requested an employee contact list. They would like to be able to contact staff members by email quickly and easily. To facilitate this, you will create a list report where the staff names are hyperlinks that will open an email addressed to that staff member.

To accomplish this:

- Create a list report using the GO Data Warehouse (query) package, Sales and Marketing (query) folder, Sales (query) namespace
- Add to the list object: Employee name, Position name, Work phone, Extension, Email.
- Make Email and Employee name data items Properties of the report.
- Cut Email column and Employee name data item (not the column title) from the report.
- Drag an HTML Item to the top cell of the Employee name column, and make it a report expression.
- Type the report expression as follows: '<a href="mailto:' + [Query1].[Email] + "'>' + [Query1].[Employee name] + '</a>'.
- Type the title of the report: Sales Staff Contact Information.
- Run the report and click Abel Antunes.

For more detailed information outlined as tasks, see the Task Table on the next page.

For final results, see the Workshop Results section that follows the Task Table.



# Workshop 1: Task Table

## Task 1: Create a list report containing HTML Items.

Where to Work	Hints
List report, GO Data Warehouse (query), Sales and Marketing (query) folder, Sales (query) namespace	<ul style="list-style-type: none"> <li>Employee name, Position name, Work phone, Extension, Email.</li> </ul>
List Properties, Properties	<ul style="list-style-type: none"> <li>Email and Employee name.</li> </ul>
Work area	<ul style="list-style-type: none"> <li>Cut Email</li> <li>Unlock cells and delete Employee name column data item</li> </ul>
Toolbox	<ul style="list-style-type: none"> <li>Drag a HTML Item to the Employee name column body.</li> </ul>

## Task 2: Define the HTML Item and format the report.

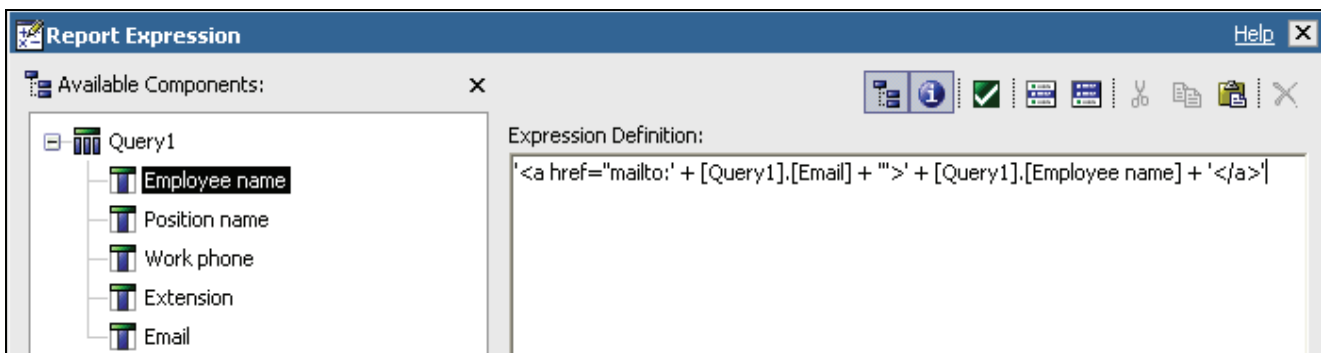
Where to Work	Hints
HTML item Properties	<ul style="list-style-type: none"> <li>Source type - Report expression.</li> </ul>
Report Pages	<ul style="list-style-type: none"> <li>Report expression - '&lt;a href="mailto:' + [Query1].[Email] + "'&gt;' + [Query1].[Employee name] + '&lt;/a&gt;'</li> </ul>
Report title	<ul style="list-style-type: none"> <li>Title: Sales Staff Contract Information</li> </ul>
Toolbar	<ul style="list-style-type: none"> <li>Run the report, click Abel Antunes.</li> </ul>

## Workshop 1: Workshop Results

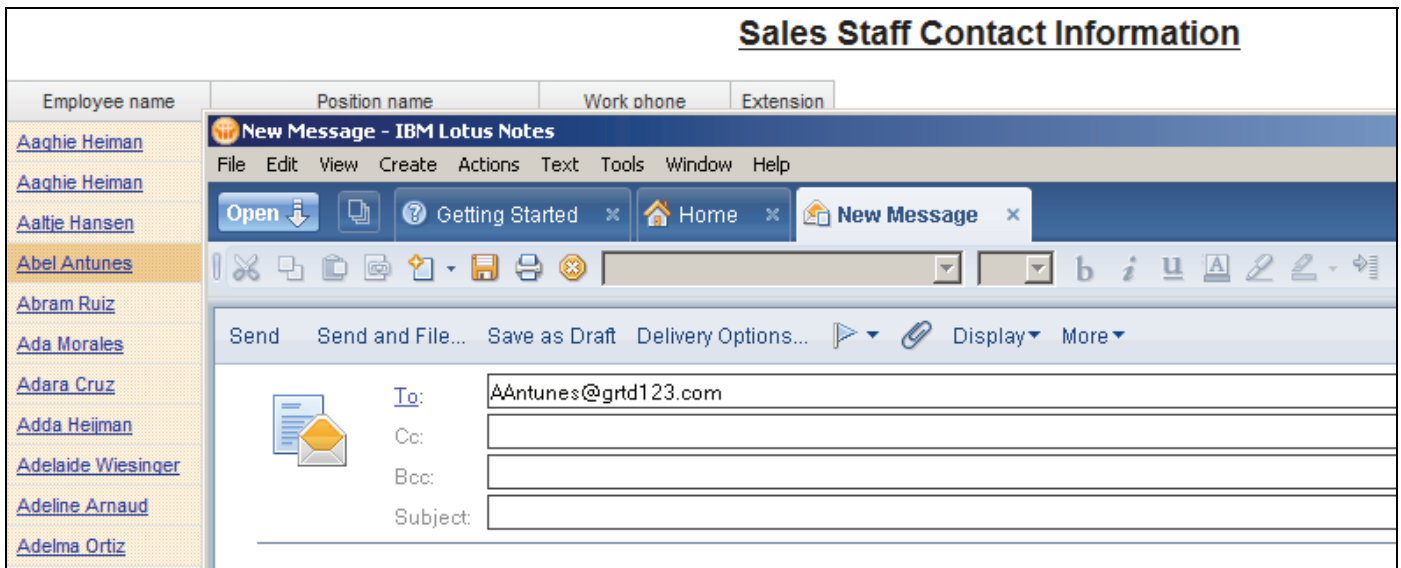
At the end of Task 1, the results appear as follows:

Employee name	Position name	Work phone	Extension
< HTML Item >	<Position name>	<Work phone>	<Extension>
< HTML Item >	<Position name>	<Work phone>	<Extension>
< HTML Item >	<Position name>	<Work phone>	<Extension>

At the end of Task 2, Step 5, the report expression appears as follows:



At the end of Task 2, Step 10, the report appears as follows:



## Workshop 1: Step-by-Step Instructions

Server: localhost  
 User/Password: brettontf/Education1!  
 Studio: Report Studio  
 Package: GO Data Warehouse (query)  
 Report Type: List  
 Folder: Sales and Marketing (query)  
 Namespace: Sales (query)

### Task 1. Create a list report containing HTML Items.

1. In the **Insertable Objects** pane, on the **Source** tab, add the following query items from **Employee by region** to the list report:  
**Employee by region → Employee name, Position name, Work phone, Extension, Email**
2. Click the list **Container Selector** to select the entire list.
3. Double-click the **Properties** cell, and select **Employee name** and **Email**, and then click **OK**.
4. Click the **Email** column, and then click **Cut**.  
 This removes the item from the interface, but leaves it in the query.  
 You added Employee name and Email data items as properties of the list so you can use them even if they are not in the layout.
5. On the toolbar, click **Unlock (currently locked)** to unlock the report.
6. Click any **Employee name** data item (not the column title), and then click **Cut**.

---

Recall, when working with report objects (such as lists), if you need to reference a data item that is in the query but not in the object, you must first specify that this data item is a property of the object.

7. In the **Insertable Objects** pane, click the **Toolbox** tab, and then drag an **HTML Item** into the top cell of the **Employee name** column.

You can now define the report expression for the HTML Item so it displays each staff member name as a hyperlink. When clicked, the hyperlink will open an email addressed to that person.

## **Task 2. Define the HTML Item and format the report.**

1. Click the **HTML item**, click the **Source Type** cell, then in the list click **Report Expression**.
2. Double-click the **Report Expression** cell.
3. In the **Expression Definition** pane, type '**<a href="mailto:'** +
4. In the **Available Components** pane, drag **Email** to the end of the expression, then type + **'">'** +

Note, type a single quote ' then a double quote "

5. In **Available Components** pane, drag **Employee name** the end of the expression then type + **'</a>'**

The portion after mailto between the two single quotes indicates the name you want displayed. Notice that you reference the Email query item which is not part of the layout.

6. Click **Validate** to ensure there are no errors, then click **OK**.
7. Double-click the report title at the top of the report page, type **Sales Staff Contact Information** and then press **Enter**.
8. Click on the page header block and click **Left**.
9. Click **Lock (currently unlocked)** to lock the report.
10. Point to **Query Explorer**, and then click **Query1**.
11. Click **Employee name**, click **Pre-sort**, and then select **Sort ascending** in the drop down list.

12. From the toolbar click **Run Report**.

The report appears as shown below:

<b><u>Sales Staff Contact Information</u></b>			
Employee name	Position name	Work phone	Extension
<a href="#">Aaghie Heiman</a>	Information Technology Manager	+(41) 17 12 13 11	9676
<a href="#">Aaghie Heiman</a>	Software Engineer	+(41) 17 12 13 11	9676
<a href="#">Aaltje Hansen</a>	Level 1 Sales Representative	+(41) 17 12 13 11	9640
<a href="#">Abel Antunes</a>	Product Manager	+55 (11) 344-4444	2605
<a href="#">Abram Ruiz</a>	Level 2 Sales Representative	+(41) 17 12 13 11	9762
<a href="#">Ada Morales</a>	Warehouse Worker	+35 94 322 3540	7693
<a href="#">Adara Cruz</a>	Accountant 2	+(39) 02 79 53 780	7704

13. Click **Abel Antunes**.

If the **Lotus Notes** authentication window pops up;  
**Password: Education1!**

14. Click the **New Message** tab if not already open. An email dialog screen appears addressed to AAntunes@grtd123.com.
15. Close all open windows.

---

The email is sent from the account you are logged in with.

Not all users can run this report. However, all users will be able to access the links in the saved report output.

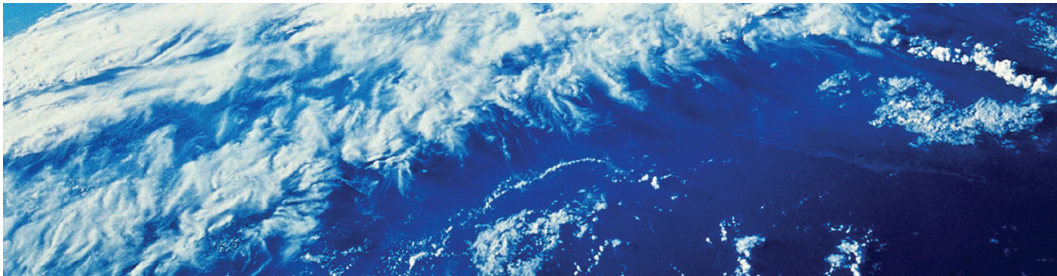




---

# Create Additional Advanced Reports

IBM Cognos BI



**Business Analytics**

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## Objectives

- At the end of this module, you should be able to:
  - create a report that displays summarized data before detailed data
  - highlight alternate rows in a list report
  - create a report using an external data file
  - use single data items to summarize report information
  - save reports to the server file system

If you intend to teach this module, students should be familiar with:

- Creating lists and crosstab reports
- Adding filters to reports
- Creating calculated data items
- Creating prompts in Report Studio
- Setting up drill-through access
- Conditionally formatting reports
- The Report Studio query model

Suggested modules to reference:

- Create List Reports
- Create Crosstab Reports
- Focus Reports Using Filters
- Focus Reports Using Prompts
- Extend Reports Using Calculations
- Enhance Report Layout
- Customize Reports with Conditional Formatting
- Set Up Drill-Through Access
- Create Query Models

**INTERACTION - Star Sticker:** Star each objective as it is presented.

## Display Summary Data Before Detailed Data

- To let users quickly locate key data, you can create a report that displays summarized information before detailed data.

Product	Quantity	Revenue
Camping Equipment(Orders: 51,715)	27,301,149	1,589,036,664.03
Cooking Gear(Orders: 12,329)	13,400,351	272,835,984.18
TrailChef Canteen	965,723	11,333,518.65
TrailChef Cook Set	813,780	41,184,274.9
TrailChef Cup	1,812,123	5,702,502.7
TrailChef Deluxe Cook Set	442,136	53,195,154.45
TrailChef Double Flame	245,559	34,311,174.84

**These rows display summarized data about sales of all products in this product line and product type.**

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You can display summarized data before the details when it would be useful to know the summarized values before reviewing the detailed values.

In the slide example, to display the number of orders in the header row title cells, the author added a calculated column that counts the number of individual Quantity entries retrieved from the data source. Since each record in the data source represents one order and each order contains a Quantity value, by counting the individual instances of Quantity the query retrieves, the calculation indicates the number of orders made. Any other data item that would be part of each order record (such as Order number, Revenue, and so on) could be used instead of Quantity.

## Demo 1: Create a Report that Displays Summarized Data Before Detailed Data

### Purpose:

Management wants a report that lets them focus on summary data about total orders made, total quantity sold, and total revenue generated for each product line and product type. You will create a report where totals appear before the details. This report will have group headers that display summary data. To add additional context, below the report title, you will display the total quantity sold and total revenue generated by all products included in the report.

Server: localhost  
User/Password: brettanf/Education1!  
Studio: Report Studio  
Package: GO Data Warehouse (query)  
Report Type: List  
Folder: Sales and Marketing (query)  
Namespace: Sales (query)

### Task 1. Open a list report and add a Count column.

You want the product line and product type headers to display the total number of orders made for each product line and product type.

To obtain this data, you will add a calculated column that counts the number of individual Quantity entries retrieved from the data source. Since each record in the data source represents one order and each order contains a Quantity value, by counting the individual instances of Quantity the query retrieves, you can determine how many orders were made.

---

In Task 1, although you chose to use the Quantity measure in the calculation, this was not the only possible choice. For example, you could have used the Revenue measure in the calculation and obtain the same result.

1. In **Report Studio**, click **File, Open**, and navigate to **Public Folders\B5159\07\_Create Additional Advanced Reports\Demo 1 Start**, and then click **Open**.
2. In the **Insertable Objects** pane, click the **Toolbox** tab, and then drag a **Query Calculation** object to the end of the list report.
3. In the **Create Calculation** dialog box, in the **Name** box, type **Count Orders** and then click **OK**.
4. In the **Data Item Expression** dialog box, create the following expression:  
**count([Quantity])**  
Hint: You can drag **Quantity** from the **Data Items** tab. You can get the **count()** function from the **Functions** tab, in the **Summaries** folder.
5. Validate the expression, and then click **OK**.

## **Task 2. Group and summarize items and add headers.**


1. Ctrl+click **Product line** and **Product type**, and then on the toolbar, click **Group / Ungroup**.
2. Click the **Quantity** column, Shift+click the **Count Orders** column, on the toolbar, click **Summarize**, and then click **Total**.
3. Click the **Product line** column, and then on the toolbar, create **Headers & Footers**, and click **Create Header**.
4. With the **Product line** column still selected, click **Delete** to remove the column from the list layout.

- Repeat steps 3 and 4 to create a **Product type** header and remove the **Product type** column.

The results appear as follows:

Product	Quantity	Revenue	Count Orders
<Product line>			
<Product type>			
<Product>	<Quantity>	<Revenue>	<Count Orders>
<Product type> - Total	<Total(Quantity)>	<Total(Revenue)>	<Total(Count Orders)>
<Product type>			
<Product>	<Quantity>	<Revenue>	<Count Orders>
<Product type> - Total	<Total(Quantity)>	<Total(Revenue)>	<Total(Count Orders)>
<Product line> - Total	<Total(Quantity)>	<Total(Revenue)>	<Total(Count Orders)>
<Product line>			
<Product type>			
<Product>	<Quantity>	<Revenue>	<Count Orders>
<Product type> - Total	<Total(Quantity)>	<Total(Revenue)>	<Total(Count Orders)>
<Product type>			
<Product>	<Quantity>	<Revenue>	<Count Orders>
<Product type> - Total	<Total(Quantity)>	<Total(Revenue)>	<Total(Count Orders)>
<Product line> - Total	<Total(Quantity)>	<Total(Revenue)>	<Total(Count Orders)>
Overall - Total	<Total(Quantity)>	<Total(Revenue)>	<Total(Count Orders)>

### Task 3. Split header cells and move summarize data from footers to headers.

- Click the **Product line** header cell (not the text item), and then on the toolbar, click **Split Cell** .

- Repeat step 1 to split the **Product type** header cell.

Since you want to add summary data to the cells in the header rows, you need to unlock the report.

- On the toolbar, click **Unlock (currently locked)**.

- From the **Product line** footer at the bottom of the list, drag the **Total (Quantity)** item to the empty **Quantity** cell in the **Product line** header at the top of the list.

The result appears as shown below:

Product	Quantity	Revenue	Count Orders
<Product line>	<Total(Quantity)>		
<Product type>			
<Product>	<Quantity>	<Revenue>	<Count Orders>
<Product type> - Total	<Total(Quantity)>	<Total(Revenue)>	<Total(Count Orders)>
<Product type>			
<Product>	<Quantity>	<Revenue>	<Count Orders>
<Product type> - Total	<Total(Quantity)>	<Total(Revenue)>	<Total(Count Orders)>
<Product line> - Total		<Total(Revenue)>	<Total(Count Orders)>
<Product line>	<Total(Quantity)>		
<Product type>			
<Product>	<Quantity>	<Revenue>	<Count Orders>
<Product type> - Total	<Total(Quantity)>	<Total(Revenue)>	<Total(Count Orders)>
<Product type>			
<Product>	<Quantity>	<Revenue>	<Count Orders>
<Product type> - Total	<Total(Quantity)>	<Total(Revenue)>	<Total(Count Orders)>
<Product line> - Total		<Total(Revenue)>	<Total(Count Orders)>
Overall - Total	<Total(Quantity)>	<Total(Revenue)>	<Total(Count Orders)>

- Repeat step 4 to move the **Total (Revenue)** and **Total (Count Orders)** items from the Product line footer to the Product line header.



6. Repeat step 4 to move the **Total (Quantity)**, **Total (Revenue)**, and **Total (Count Order)** items from the **Product type** footer to the **Product type** header.

The result appears as shown below:

Product	Quantity	Revenue	Count Orders
<Product line>	<Total(Quantity)>	<Total(Revenue)>	<Total(Count Orders)>
<Product type>	<Total(Quantity)>	<Total(Revenue)>	<Total(Count Orders)>
<Product>	<Quantity>	<Revenue>	<Count Orders>
<Product type> - Total			
<Product type>	<Total(Quantity)>	<Total(Revenue)>	<Total(Count Orders)>
<Product>	<Quantity>	<Revenue>	<Count Orders>
<Product type> - Total			
<Product line> - Total			
<Product line>	<Total(Quantity)>	<Total(Revenue)>	<Total(Count Orders)>
<Product type>	<Total(Quantity)>	<Total(Revenue)>	<Total(Count Orders)>
<Product>	<Quantity>	<Revenue>	<Count Orders>
<Product type> - Total			
<Product type>	<Total(Quantity)>	<Total(Revenue)>	<Total(Count Orders)>
<Product>	<Quantity>	<Revenue>	<Count Orders>
<Product type> - Total			
<Product line> - Total			
Overall - Total	<Total(Quantity)>	<Total(Revenue)>	<Total(Count Orders)>

You no longer require the footers so you will delete them from this report.

7. On the toolbar, click **Headers & Footers**, click **List Headers & Footers**, clear the **Product type (footer)**, **Product line (footer)**, and **Overall footer** check boxes, and then click **OK**.

**INTERACTION - Survey:** Verify that each participant has been successful in moving the information in to the appropriate cells.

8. From the toolbar click **Run Report**.

The result appears as shown below:

Product	Quantity	Revenue	Count Orders
Camping Equipment	27,301,149	1,589,036,664.03	51,715
Cooking Gear	13,400,351	272,835,984.18	12,329
TrailChef Canteen	965,723	11,333,518.65	1,180
TrailChef Cook Set	813,780	41,184,274.9	1,394
TrailChef Cup	1,812,123	5,702,502.7	1,180
TrailChef Deluxe Cook Set	442,136	53,195,154.45	1,298
TrailChef Double Flame	245,559	34,311,174.84	1,377
TrailChef Kettle	2,336,950	25,368,496.06	1,180
TrailChef Kitchen Kit	866,669	19,535,825.83	1,180
TrailChef Single Flame	686,493	43,189,819.56	1,180
TrailChef Utensils	922,090	15,958,075.73	1,180
TrailChef Water Bag	4,308,828	23,057,141.46	1,180

The total quantity sold, revenue generated, and the total number of orders for each product line and product type appears in the headers.

You will now move the data about the number of orders made to just after the Product line and Product type text in the headers.

9. Close **IBM Cognos Viewer**.



## Task 4. Move the data about the total number of orders made and format the report.

1. From the **Insertable Objects** pane, drag a **Text Item** object to the right of the **Product line** text in the **Product line** header.
2. In the **Text** dialog box, press the spacebar, type **(Orders:** and then press the spacebar again.
3. Click **OK** to close the dialog box, and then drag the **Total (Count Orders)** text item from the **Product line** header row to the right of the text you just added.
4. From the **Insertable Objects** pane, drag a **Text Item** object to the right of the **Count Orders** item you just moved, in the Text box, type **)** and then click **OK**.

The result appears as shown below:

Product	Quantity	Revenue	Count Orders
<Product line> (Orders: <Total(Count Orders)>)	<Total(Quantity)>	<Total(Revenue)>	

You want to add the same information to the Product type header.

5. Repeat steps 1-4 to add information about the number of orders for each product type to the **Product type** header cell.

The result appears as shown below:

Product	Quantity	Revenue	Count Orders
<Product line> (Orders: <Total(Count Orders)>)	<Total(Quantity)>	<Total(Revenue)>	
<Product type> (Orders: <Total(Count Orders)>)	<Total(Quantity)>	<Total(Revenue)>	

You no longer require the Count Orders column in the report layout.

6. On the toolbar, click **Lock (currently unlocked)**, click the **Count Orders** List Column Body, and then on the toolbar, click **Delete**.

To make this report easier to read, you want to indent the Product type text and the Product items in the Product name column body.

7. In the report, click the **Product type** header cell, and then press the **Tab** key.
8. In the **Properties** pane, double-click the **Padding** cell.

Notice that because you pressed the Tab key, the padding on the left side is set to 20 pixels.

9. Click **OK**.
10. In the report, click a **Product** cell, and then press the **Tab** key twice.
11. In the **Properties** pane, double-click the **Padding** cell.

Notice that because you pressed the Tab key twice, the padding on the left side is set to 40 pixels.

12. Click **OK**.

## **Task 5. Add a report title and add quantity and revenue summary labels below the report title.**

You will add data to the report title displaying the total Revenue generated and Quantity sold by all Product lines included in the report.

1. In the report, double-click the report title text, in the **Text** dialog box, type **Product Orders** and then click **OK**.
2. From the **Insertable Objects** pane, drag a **Table** object to the right of the block holding the report title.
3. In the **Number of columns** box, type **1**, in the **Number of rows** box, type **2**, and then click **OK**.

4. From the **Insertable Objects**, drag a **Text Item** object to the top row of the table you just added.
5. In the **Text** box, type **Total Quantity Sold:** press the spacebar, and then click **OK**.
6. From the **Insertable Objects** pane, drag a **Text Item** object to the bottom row of the table.
7. In the **Text** box, type **Total Revenue:**, press the spacebar, and then click **OK**.

You need to add a query calculation to display the total quantity sold by all records retrieved by the query. To do this, you need to set query1 as a property of the Page object.


## **Task 6. Add quantity and revenue summary data using a singleton.**

1. From the **Toolbox** tab, drag a **Singleton** object to the right of the **Total Quantity Sold:** text.  
In the Properties pane, notice that the singleton object is associated with Query 2. You will select the Quantity query item for the singleton from the Source tab, instead of the Data Items tab, which only contains Quantity associated with Query 1.
2. From the **Source** tab, in the **Sales fact** query subject, drag **Quantity** onto the singleton object you just added.
3. Right-click the singleton, and then click **Go to Query**.
4. In the **Data Items** pane, click **Quantity**, and then in **Properties** pane, double-click the **Expression** property and create the following expression:  
**total([Sales (query)].[Sales fact].[Quantity]for report)**
5. Repeat steps 1 - 4 to create the summary total for **Total Revenue:**.

---

Task 6, Singletons will be discussed in more detail, later in this module.

## Task 7. Format the quantity and revenue summary information.

1. Point to **Page Explorer**, and then click **Page1**.
2. Ctrl+click the two rows of the table you added, and then in the **Properties** pane, double-click the **Classes** cell.
3. In the **Global Classes** list, click **Report title area**, click the right arrow , and then click **OK**.
4. In the two rows objects, Ctrl+click all four objects, and then on the toolbar, click **10 pt, Bold**.
5. Click the **<Revenue>** singleton, and then in the **Properties** pane, click **Data Format**.
6. In the **Format type** list, click **Currency**, and then in the **Properties** pane, set the **Currency** to **\$(USD)**.
7. Click anywhere on the page below the list object, then on the toolbar, click **Center**.

**INTERACTION - Toolbar Emoticons > Raise Hand:** Ask the participants, what else could be done to yield the same data values.

A: They could also change the query property to Query 1, select Quantity from the Data Items tab

8. From the toolbar click **Run Report**.

A section of the results appear as follows:

<b>Product Orders</b>		
<b>Total Quantity Sold: 89,237,091</b>		
<b>Total Revenue: \$4,686,775,768.85</b>		
Product	Quantity	Revenue
<b>Camping Equipment(Orders: 51,715)</b>	<b>27,301,149</b>	<b>1,589,036,664.03</b>
<b>Cooking Gear(Orders: 12,329)</b>	<b>13,400,351</b>	<b>272,835,984.18</b>
TrailChef Canteen	965,723	11,333,518.65
TrailChef Cook Set	813,780	41,184,274.9
TrailChef Cup	1,812,123	5,702,502.7
TrailChef Deluxe Cook Set	442,136	53,195,154.45
TrailChef Double Flame	245,559	34,311,174.84
TrailChef Kettle	2,336,950	25,368,496.06
TrailChef Kitchen Kit	866,669	19,535,825.83
TrailChef Single Flame	686,493	43,189,819.56
TrailChef Utensils	922,090	15,958,075.73
TrailChef Water Bag	4,308,828	23,057,141.46
<b>Cooking Gear - Total</b>		
<b>Lanterns(Orders: 14,649)</b>	<b>4,826,755</b>	<b>126,925,660.64</b>
EverGlow Butane	117,948	7,558,900.7
EverGlow Double	49,429	2,563,403.94

The text under the report title displays the total quantity sold and total revenue generated by all product lines.

9. Close **IBM Cognos Viewer** and then leave **Report Studio** open for the next demo.

## Results:

**You created a report that lets users quickly locate total quantity sold, total revenue generated, and total orders made for each product type and product line. To give additional context, you added report summary totals for quantity and revenue below the report title.**

## Highlight Alternate Rows

- To make a report easier to read, you can format a list so rows appear in two alternating colors.

Product name	Revenue	Quantity	Calc.
TrailChef Cup	\$218,416	51,834	1
TrailChef Kettle	\$118,595	9,900	0
Star Gazer 2	\$9,123,447	18,262	1
Star Peg	\$85,937	44,686	0
TrailChef Utensils	\$268, 084	15,928	1
Firefly Lite	\$179,749	13,558	0

**Expression used to control the conditional formatting of alternating rows**

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To highlight alternate rows in a report, create a calculated data item that returns 0 for even rows and 1 for odd rows. Then, apply conditional formatting based on the report data.

You may want to leave the calculated column in the report for testing purposes. The calculated column need not appear in the final report, although the calculated data item must be a property of the List object.

The mod operator works as follows:

- If you ask the mod function to return the remainder of 1 divided by 2, since the remainder would not be a whole number, the mod function will return the numerator (1).
- 2/2 will have a remainder of 0
- 3/2 will have a remainder of 1
- 4/2 will have remainder of 0, etc.

Because you use the running-count summary function to assign a sequential number to every row, this technique can only be used on list reports, not crosstabs.

A quick way to apply identical conditional formatting to all columns in a list report is apply it to the List Columns Body Style. This saves time, and will also apply the formatting to any future columns you may add to the report.

## Demo 2: Highlight Alternate Rows in a List Report (Optional)

### Purpose:

The Human Resources department has requested a report showing bonus and salary data for each member of the sales staff. To make the report easier to read, every other row must be highlighted in blue. You will create a calculated item that returns 0 for even rows and 1 for odd rows, and will then conditionally format every other row to be highlighted in blue.

Server: localhost  
User/Password: brettanf/Education1!  
Studio: Report Studio  
Package: GO Data Warehouse (query)  
Report Type: List

### Task 1. Create a list report.

1. In Report Studio, click **File, Open**, and navigate to **Public Folders\B5159\07\_Create Additional Advanced Reports\Demo 2 Start**, and then click **Open**.

2. On the toolbar, click **Run Report**.

A section of the results appear as follows:

Employee name	Salary	Bonus value
Aaghie Heiman	60,500	\$6,576.92
Aaltje Hansen	31,730.77	\$0.00
Abel Antunes	63,461.54	\$6,969.23
Abram Ruiz	46,653.85	\$0.00
Ada Morales	29,190.77	\$3,228.40
Adara Cruz	63,461.54	\$7,056.92
Adda Heijman	42,576.92	\$0.00
Adelaide Wiesinger	27,943.08	\$6,406.89
Adeline Arnaud	25,076.92	\$1,883.08
Adelma Ortiz	41,153.85	\$4,753.85
Adriaantje Haanraads	42,576.92	\$0.00

To make this report easier to read, you want to highlight every other row in blue. You will create a calculated data item that will return zeros for even rows and ones for odd rows. You can then apply conditional formatting to the report based on this calculated item.

3. Close **IBM Cognos Viewer**.



## Task 2. Add a calculated data item.

1. Point to **Query Explorer**, and then click **Query1**.
2. In the **Insertable Objects** pane, click the **Toolbox** tab, and then drag a **Data Item** object to the **Data Items** pane.

You will create a calculation that counts each row in the report that contains a Salary data item value. The calculation will then divide the row number by two and return the remainder. The remainder for even rows will be 0 and the remainder for odd rows will be 1.

3. In the **Data Item Expression** dialog box, create the following expression:  
**mod(running-count([Employee name]),2)**

Hint: You can find the **mod()** function on the **Function** tab, in the **Common Functions** folder. The **running-count()** function is in the **Summaries** folder. **[Employee name]** is found on the **Data Items** tab.

4. Validate the expression, and then click **OK**.
5. In the **Properties** pane, change the **Name** property to **EvenOdd**.

---

We use the **Employee name** because of the possibility that **Salary** and **Bonus** may have a \$0.00 rows and not be counted. This would cause a duplication of a highlighted row. Since **Employee name** must be there, rows will always have alternate highlighting.

**INTERACTION - Toolbar Emoticons > Raise Hand:** Ask the participants, which column would yield the most consistent results.

A: Employee name (there will always be row with a value)  
 Salary – some employees may work for bonus only  
 Bonus value – some employees do not earn bonuses.

### Task 3. Add the calculated item to the report and then create a conditional variable.

You will add the EvenOdd data item to see the values returned in the report.

1. Point to **Page Explorer**, click **Page1**, and then in the **Insertable Objects** pane, click the **Data Items** tab.
2. From the **Insertable Objects** pane, drag the **EvenOdd** item to the end of the list report, and then run the report.

The result appears as shown below:

Employee name	Salary	Bonus value	EvenOdd
Aaghie Heiman	60,500	\$6,576.92	1
Aaltje Hansen	31,730.77	\$0.00	0
Abel Antunes	63,461.54	\$6,969.23	1
Abram Ruiz	46,653.85	\$0.00	0

In even rows, the EvenOdd value is 0 and in odd rows the value is 1. These values will be used to apply conditional formatting to alternating rows in the report.

You do not want to display the calculated data item in the report layout, however, you need to make this calculated item a property of the List object.

3. Close **IBM Cognos Viewer**; click the **EvenOdd** column, then click **Select Ancestor** from the **Properties** window title bar, and then click **List Column**.
4. From the **Properties** window, under **Conditional**, change **Render** to **No**.

This maintains the EvenOdd column as a property of the list but does not render it at run time.

You will next create a Boolean variable that will let us apply formatting to alternate rows depending on whether the EvenOdd calculation is value is 1 or 0.

5. Point to **Condition Explorer**, click **Variables**, and then in the **Insertable Objects** pane, double-click **Boolean Variable**.
6. In the **Report Expression** dialog box, from the **Available Components** pane, drag the **EvenOdd** item to the **Expression Definition** pane, and then at the end of the expression, type **=0**.
7. In the **Report Expression** dialog box, click **Validate**, and then after the expression is validated without any errors, click **OK**.

You created a Boolean variable because there are only two possible choices: the EvenOdd value can be 1 or 0. You can now apply this variable to the report so if the value is Yes (because the row is even and the EvenOdd value equals 0), the row will be highlighted in blue.

8. With the variable still selected, in the **Properties** pane, change the **Name** property to **EvenRows**.

#### **Task 4. Apply conditional formatting and run the report.**

1. Point to **Page Explorer**, and then click **Page1**.
2. Click any column in the list, in the **Properties** pane, click **Select Ancestor**, and then click **List Columns Body Style**.
3. In the **Properties** pane, double-click the **Style Variable** cell, in the **Variable** list, click **EvenRows**, and then click **OK**.

You will now specify that even rows be highlighted in blue.

4. Point to **Condition Explorer**, and then click **Yes**.

The Explorer bar turns green to indicate that conditional formatting is turned on.

5. On the toolbar, click **Background Color** , and then in the **Background Color** dialog box, click the **Web Safe Colors** tab.
6. Click the light blue box three rows up in the last column on the right (#CCFFFF).

The list columns are highlighted in blue.

7. Double-click the **Explorer bar** to turn off conditional formatting, and then run the report.

A section of the results appear as follows:

Employee name	Salary	Bonus value
Aaghie Heiman	60,500	\$6,576.92
Aaltje Hansen	31,730.77	\$0.00
Abel Antunes	63,461.54	\$6,969.23
Abram Ruiz	46,653.85	\$0.00
Ada Morales	29,190.77	\$3,228.40
Adara Cruz	63,461.54	\$7,056.92
Adda Heijman	42,576.92	\$0.00
Adelaide Wiesinger	27,943.08	\$6,406.89

Every other row in the list report is highlighted in blue.

8. Close **IBM Cognos Viewer**.

Leave Report Studio open for the next demo.

### Results:

**You created a report in which every other row is highlighted in blue. To do this, you created a calculated item that returned 0 for even rows and 1 for odd rows. You then applied conditional formatting to the list columns so that every other row was highlighted in blue.**

**INTERACTION - Toolbar Emoticons > Raise Hand:** Task 4, Steps 4 and 5, ask the participants to choose a color for highlighting the rows.

## Display Single Data Values Outside of Report Data Objects

- Use singletons to display a single report value that does not relate to the query associated with the data container object, or to the page query context.

2004	France	Hugues Boisseau	\$194,472.35
2006	Sweden	Kolina Nilsson	\$151,605.59
2004	Korea	Ra-San Yoon	\$67,995.23
2005	Switzerland	Ines Wouters	\$6,134.78
Top Sales Country 2007:		Switzerland	
Top Sales Rep 2007:		Helena Lindholm	

List report  
(Query 1)

Singleton (Query2)  
Singleton (Query3)

**Both singletons are in a table, on a report page with no associated query.**

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Singletons allow you to display single data values in a report without having to set the page-query association or join unrelated queries.

When you drop a singleton item into a report, it creates a query that retrieves only the first row value.

You cannot sort singleton queries, since only one row is returned.

You cannot set 'no data' options on a singleton item.

Singleton queries are not supported when producing report output in CSV format.

## Demo 3: Use Singletons to Summarize Information in a Report

### Purpose:

You want to create a list report showing the revenue generated by each sales rep for each year. You then want to create a table to show the top sales country and top sales representative for the year 2007.

Server: localhost  
 User/Password: brettanf/Education1!  
 Studio: Report Studio  
 Package: GO Data Warehouse (query)  
 Report Type: List  
 Folder: Sales and Marketing (query)  
 Namespace: Sales (query)

### Task 1. Add a table to a list report.

1. In **Report Studio**, click **File**, **Open**, and navigate to **Public Folders\B5159\07\_Create Additional Advanced Reports\Demo 3 Start**, and then click **Open**.
2. From the **Table** menu, point to **Insert**, and then select **Table**.
3. Set **Number of columns** to **2** and **Number of rows** to **2**.
4. Clear the **Maximum width** check box, select the **Show Borders** check box, and then click **OK**.

The results appear as follows:

Year	Country	Employee name	Revenue
<Year>	<Country>	<Employee name>	<Revenue>
<Year>	<Country>	<Employee name>	<Revenue>
<Year>	<Country>	<Employee name>	<Revenue>

## Task 2. Add singletons in a table.

1. In the **Insertable Objects** pane, on the **Toolbox** tab, drag and drop a **Text Item** into the top left cell in the table, type **Top Sales Country 2007:** add a space, and then click **OK**.
2. In the bottom left cell, add a **Text Item**, type **Top Sales Rep 2007:** add a space, and then click **OK**.
3. In the **Insertable Objects** pane, on the **Source** tab, from **Employee by region**, drag **Country** into the top right cell.
4. Click **OK** to accept the new singleton.
5. Drag **Employee name** into the bottom right cell, and then click **OK**.
6. Run the report, and then click **Bottom** to view the table.

The results appear as follows:

Top Sales Country 2007:	Australia
Top Sales Rep 2007:	Aaghie Heiman

These are not the correct values you want in the table. You need to customize the query to display the correct values.

7. Close **IBM Cognos Viewer**.

**INTERACTION - Toolbar Emoticons > Raise Hand:** In task 2, Step 6; where are these values being retrieved from when the datasource is queried?

A: When you drop a singleton item into a report, it creates a query that retrieves only the first row value.

### Task 3. Customize the query.

1. In the work area, right-click the **Country** singleton, and then select **Go to Query**.
2. In the **Properties** pane, under **Miscellaneous**, rename **Query2** to **Top Sales Country**, and then press **Enter**.
3. In the **Insertable Objects** pane, on the **Source** tab, from **Sales fact**, drag **Revenue** to the **Data Items** pane.
4. In the **Properties** pane, click **Expression**, and then click the **ellipsis**.
5. Edit the expression as follows:  
**total([Sales (query)].[Sales fact].[Revenue] for [Country])**  
 Hint: Drag **Country** from the **Data Items** tab.
6. Validate the expression, and then click **OK**.
7. On the **Toolbox** tab, drag a **Data Item** into the **Data Items** pane.
8. In the **Expression Definition** pane, type **maximum ([Revenue] for report)** validate the expression, and then click **OK**.
9. In the **Properties** pane, rename **Data Item1** to **Max Revenue** and press **Enter**.
10. From the **Data Items** pane, drag **Revenue** into the **Detail Filters** window.
11. In the **Expression Definition** pane, create the following expression:  
**[Revenue]=[Max Revenue]**
12. Validate the expression, and then click **OK**.
13. In the **Insertable Objects** tab, from the **Source** tab, from **Time** drag **Year** into the **Data Items** pane, and then from the **Data Items** pane, drag **Year** into the **Detail Filters** pane.



14. Create the expression, as follows:

**[Year]=2007**

15. Validate the expression and click **OK**.

16. Repeat steps 1-15 for the singleton **Employee name**.

- rename **Query3** to **Top Sales Rep**
- create the expression **total([Sales (query)].[Sales fact].[Revenue] for [Employee name])**

17. Run the report, and then click **Bottom** and notice that the table now displays the correct values.

The results appear as follows:

Top Sales Country 2007:	Switzerland
Top Sales Rep 2007:	Helena Lindholm

18. Close **IBM Cognos Viewer**.

Leave Report Studio open for the next Demo.

### Results:

**You created a list report showing the revenue generated by each sales rep for each year. You then created a table to show the top sales country and top sales representative for the year 2007.**

**INTERACTION - Toolbar Emoticons > Raise Hand:** Task 3, Step 16; ask participants, what is another way to accomplish this?

A: Copy the data items and filters from one query to the other. This would show the multi-select ability of this version of Report Studio.

## Use External Data

- External data:
  - is data that is not in the query database
  - extends existing packages with new query subjects
    - Microsoft® Excel (.xls)
    - tab-delimited text (.txt)
    - comma-separated (.csv)
    - XML files

Many times report authors need to add external data to IBM Cognos content to meet report requirements. In many cases, the authors are unable to merge the data from external data sources without intervention from IT. The objective of the External Data functionality is to provide this capability to the report author.

External data extends an existing package definition with new query subjects that are in the external data file. The definition involves two steps:

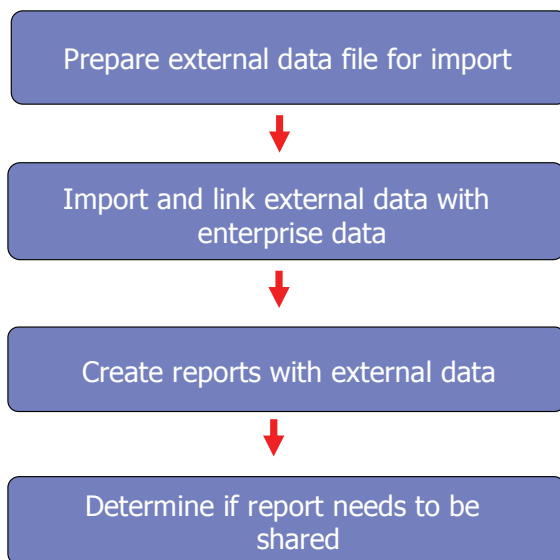
- Identifying columns from the external data file to become new query subjects.
- Defining how the External Data file will be related to the existing IBM Cognos content.

Explain to the class that at least one query subject from their report must be mapped to a data item from their data. The mapping creates joins (or relationships) between external data and enterprise data. This will ensure that the data is integrated smoothly.

**INTERACTION - Toolbar Emoticons > Yes/No:** Ask the class if they have external enterprise data that they feel will need to be integrated with IBM Cognos packages. Have them select Yes or No.

**INTERACTION - Microphone:** Based on students that answered yes to the above question, pass the microphone to a student to give an example of when they would need to use external data.

## Process to Use External Data



External data extends an existing package definition by adding new query subjects from the external data source. As you prepare to import, identify which columns of the external data will become new query subjects and then define how the External Data will relate to the existing IBM Cognos content.

To work with external data:

1. Ensure external data file matches your enterprise data. It is necessary to link at least one column of external data with your enterprise data source.
2. Import your external data file using the step by step wizard.
3. Create reports. After the imported and linked, the data appears in the data tree in the Insertable Objects pane.
4. Determine if you want to share your reports that use external data.

---

Before external data can be imported by a user, the IBM Cognos administrator must grant permission for the **Allow External Data** capability.

The maximum file size that can be imported is 2.5 MB, with a maximum of 20000 rows. A maximum of one external data file per package can be imported by default; however, the IBM Cognos data modeler can override these governors in Framework Manager.

## Demo 4: Create a Report and Add External Data

### Purpose:

You have received a .csv file from the Human Resources manager, which includes updated city and country locations for all employees. You want to create a report that will include the employee details (name, employee code, and sales target numbers) from the corporate data, with the updated employee location information in the external file. To do this, you will create a report using the enterprise data, and add the external data to the package. This will allow you to create a report that displays the sales targets and current employee location information.

Server: localhost  
 User/Password: brettonf/Education1!  
 Studio: Report Studio  
 Package: Public Folders> Samples> Models> GO Sales (query)  
 Report Type: List

### Task 1. Create a list report.

- From the **Insertable Objects** pane, **Source** tab, expand **Sales target (query)** namespace and add the following query subjects to the list:
  - **Sales staff** : → **Staff name**, **Sales staff code**
  - **Sales target**: → **Sales target**

- Run the report

A section of the report layout appears as follows:

Staff name	Sales staff code	Sales target
Élizabeth Michel	10005	\$32,268,800.00
Émile Clermont	10006	\$7,486,000.00
Étienne Jauvin	10007	\$46,673,100.00

- Close IBM Cognos Viewer, and save the list report in **Public Folders > B5159** as **Mod 7\_Demo 4**.

## Task 2. Identify the external data file and columns for the report.

1. From the **Tools** menu, click **Manage External Data**.

The External Data wizard opens to guide you through the process of identifying and mapping the external data. The process begins with selecting the external data.

2. In the **External data file** box, click **Browse**, and then navigate to **D:\Program Files\IBM\cognos\c10\webcontent\samples\datasources\cubes\PowerCubes\EN\great\_outdoors\_sales\_en\sales\_reg.csv**, and then click **Open**.

3. Scroll through the list of selected items to review the file.

You will bring in all columns at this time. You could deselect check boxes for the columns that you do not require.

4. Ensure that the **Allow server to automatically load file** check box is not selected.

If you share this report with other users, this allows other users to run your report using their own version of the external data file. If they use their own version, the file must contain the same columns as your original external data file that you used to import the data and create the report. If you always want the report to run using your version of the external data file, then you should select the Allow server to automatically load file check box.

Notice the Namespace for the external data box displays the default namespace that will be assigned. The namespace provides a unique name to associate with the data items that you import. The namespace appears in the data tree of the Source tab in the Insertable Objects and is used to organize the data items. By default, the namespace is the imported file name without the extension. If you change the default name for the namespace, you are prompted to select the external data file each time you run the report. To avoid this, select the Allow server to automatically load file check box.

5. Click **Next** to proceed to the **Data Mapping** page.

### Task 3. Map the external data file with the existing data.

1. On the **Data Mapping** page, under **Existing query subject / report**, click the ellipsis, and then click **Choose Report**.
2. Navigate to **Public Folders > B5159**, click **Mod 7\_Demo 4**, and then click **Open**.

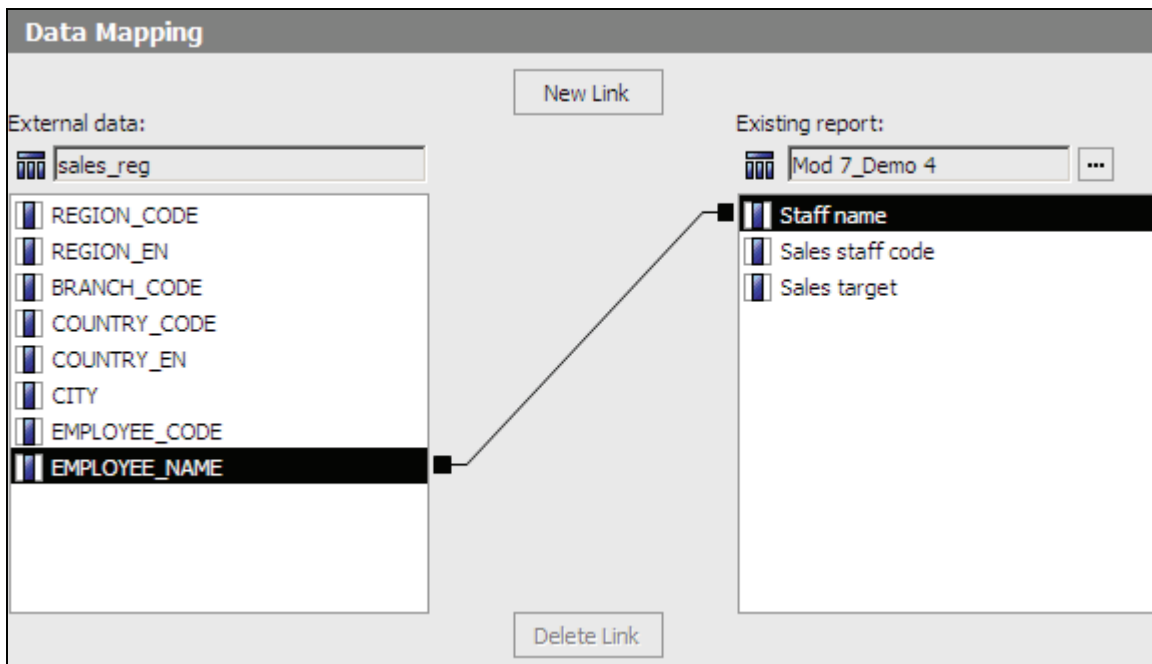
The Existing report pane is populated with the columns in the report. You will now define the relationships between the query items in the external data and the query items in the corporate data of the existing report.

3. Click **New Link**.

A line appears between the panes, defaulting to the first item in each list. You will define the relationship by selecting the items for the new link.

4. In the **External data** list click **EMPLOYEE\_NAME**, and then in the **Existing report** list ensure that **Staff name** is selected.

The results appear as follows:



You have defined a link.

5. Click **New Link**, and then in the **External data** list click **EMPLOYEE\_CODE**, and then in the **Existing report** list click **Sales Staff code**.

You have identified joins between the two sources of data.

6. Click **Next** to define the attributes of the external data.

Data item attributes can be modified on this page, if needed. You do not need to modify any attributes for this demo.

7. Click **Next** to define your mappings.

A summary of the items is displayed. You will accept the default handling of values in the data source and in the report results.

8. Click **Finish**.

The External Data wizard closes and the Manage External Data box displays the new package name. The default name uses the original package name and appends it with External Data.

9. Once you are satisfied with the package name, click **Publish**.

The new package will be automatically saved in My Folders. A dialog box appears with information regarding the new package.

10. Click **OK** to close the message.

The system updates the model metadata, and validates the currently open report against the new package. After the package is loaded, the new package is presented in the Insertable Objects pane.



11. Click **OK** after the report is validated.

Notice that the report itself has not changed.

12. On the IBM Cognos software page, click **IBM Cognos Connection**, and then click the **My Folders** tab to see the package.

13. Return to **Report Studio**.

## Task 4. Use the External Data file in a report.

1. On the toolbar, click **New**, and then click **No** to saving changes.
2. Double-click **List**.
3. Click the **Source** tab of the **Insertable Objects** pane, expand the **sales\_reg** namespace.
4. From the **sales\_reg** query subject, Ctrl+click **COUNTRY\_EN** and **CITY**, and then drag them to the list.
5. From the **Mod 7\_Demo 4** query subject, drag **Staff name**, **Sales staff code**, and **Sales target** to the end of the list.
6. Ctrl+click **COUNTRY\_EN** and **CITY** columns, and then group.
7. Click **Sales target** list column body, and then from tool bar, click the **Data Format**  button.
8. From the **Format type:** list click on **Currency**, then click on **\$ (USD)-United States of America, dollar**, then click on **Yes** from the **Use Thousands Separator** list, and then click on **OK**.
9. With the **Sales target** column still selected, click **Summarize**  from the toolbar and then click **Total**.




## 10. Run the report

The results appear as follows:

COUNTRY_EN	CITY	Staff name	Sales staff code	Sales target
Australia	Melbourne	Alice Walter	10089	\$16,834,700.00
		Dave Smythe	10090	\$15,084,300.00
		Donald Neely	10526	\$997,200.00
		Donald Ward	10091	\$18,036,200.00
		Jackie Fulford	10527	\$17,965,800.00
		Jake Cartel	10092	\$3,786,500.00
		John Sinden	10093	\$4,462,400.00
		Jonathan Farrel	10773	\$2,073,100.00
	Melbourne - Total			\$79,240,200.00
Australia - Total			\$79,240,200.00	

11. Close **IBM Cognos Viewer**.12. Save the report using **Mod 7\_Demo 4** as the filename, click **OK** to override the previous report, and then close **IBM Cognos Report Studio**.13. Click **Log Off**, and then close **Internet Explorer**.**Results:**

**You received a .csv file from the Human Resources manager, which included updated city and country locations for all employees. You created a report with employee details using the updated employee location information in the external file.**

Business Analytics



## Save Reports to Server File System

- Users can save report results to the file system of the IBM Cognos BI server.

Name
Report1-en-us.pdf
Report2-en-us.mht
Report1-en-us-pdf_desc.xml
Report1-en-us-mht_desc.xml

Report format saved with the report name and appended locale

A matching XML description file is saved with the naming convention <name>-<format> \_desc.xml

  
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This feature is disabled by default and requires the administrator to enable it in IBM Cognos Configuration.

The administrator allows specific users or groups to save report results to the file system of the IBM Cognos BI server. In a multi-server environment, shared file locations can be used.

This feature is discussed and demonstrated in *IBM Cognos BI Administration (v10.1), Module 7, Manage Content in IBM Cognos Administration*.

The .mht file extension is short for MIME HTML, a web page archive format used to bind external links (such as images, Flash animations, Java applets, audio files) together with HTML code into a single file.

## Summary

- At the end of this module, you should be able to:
  - create a report that displays summarized data before detailed data
  - highlight alternate rows in a list report
  - create a report using an external data file
  - use single data items to summarize report information
  - save reports to the server file system

**INTERACTION - Check Sticker:** Check each objective as it is summarized.

## Workshop 1: Create a Report in Green Bar Format

The Human Resources department wants a report containing contact and factual information for each employee. To make this report easier to read, the department wants the report to contain alternating sections of green and white rows.

To accomplish this:

- In Report Studio, navigate to Public Folders\B5159\07\_Create Additional Advanced Reports, and then open Workshop 1 Start.
- Add a calculated column to the report that lets you conditionally format every other five rows to appear with a green background.
- Name the calculated item Green or White, add the calculated item to the report, and run the report to see the data generated in the calculated column.
- Conditionally format the list columns so every other five rows are highlighted in light green.
- Modify the report so the Green or White column does not appear in the report.
- Run the report.

For more detailed information outlined as tasks, see the Task Table on the next page.

For the final results, see the Results section that follows the Task Table.

---

Remind students that when using the mod function, if the remainder is not a whole number, the mod function will return the numerator. Example: 5/10 will return 5, but 11/10 will return 1. This will be important to know when creating the calculated item for this report.

## Workshop 1: Task Table

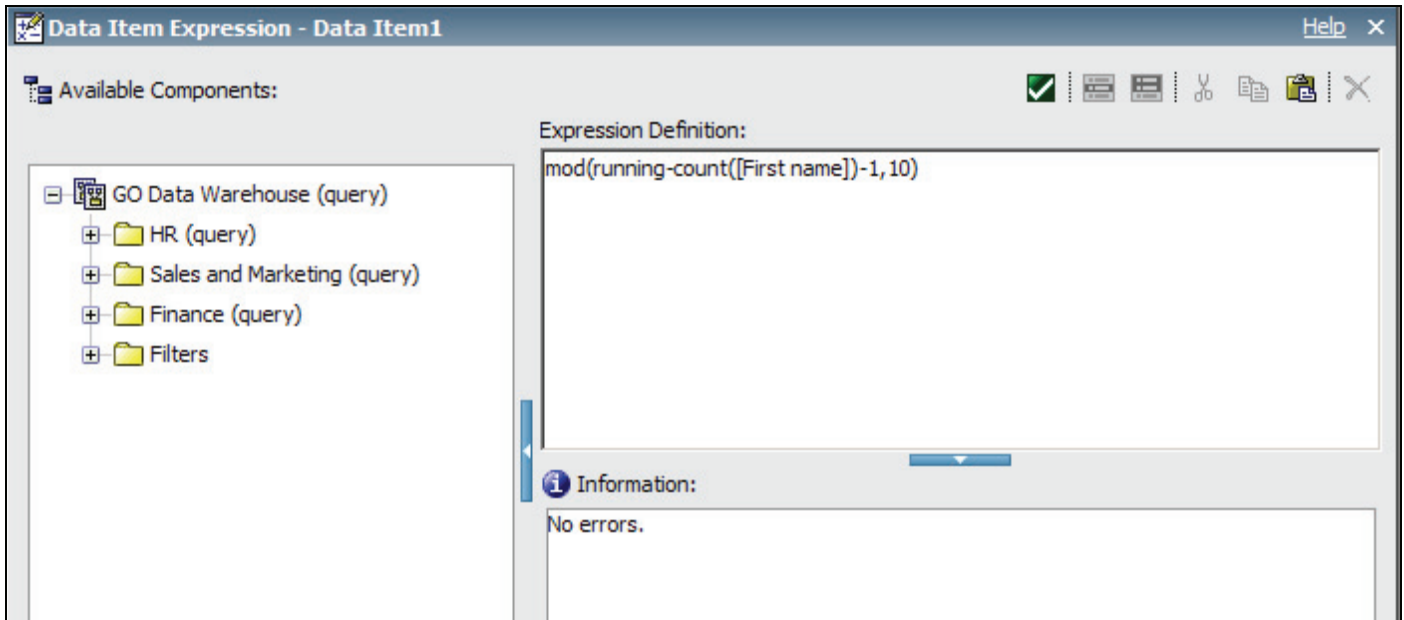
### Task 1: Create a list report with a calculated column.

Where to Work	Hints
GO Data Warehouse (query) package, Sales and Marketing (query) folder, Sales (query) namespace Toolbox tab	<ul style="list-style-type: none"> <li>• Add a query calculation called Green or White that accomplishes the following:               <ul style="list-style-type: none"> <li>• calculates the running count of each row using First name (running-count function)</li> <li>• subtracts 1 from the running count</li> <li>• divides the running count (minus 1) by 10 and returns the remainder (mod function)</li> </ul> </li> <li>• Run the report.</li> <li>• Modify the calculated query item so that if the remainder is less than or equal to 4, the cell will display the word "Green", otherwise, the cell will display the word "White".</li> </ul>
Toolbar	<ul style="list-style-type: none"> <li>• Run the report.</li> </ul>

<b>Task 2: Create a conditional variable.</b>	
<b>Where to Work</b>	<b>Hints</b>
Page1	<ul style="list-style-type: none"> <li>• Select the List Columns Body Style for the list.</li> </ul>
Properties pane	<ul style="list-style-type: none"> <li>• Add a style variable (string) called RowColor.</li> <li>• Add a value for the variable called Green.</li> </ul> <p>Add the Green or White data item as the expression for the variable.</p>
<b>Task 3: Apply conditional formatting to the report, and then run the report.</b>	
<b>Where to Work</b>	<b>Hints</b>
Page1, Properties pane, Select Ancestor	<ul style="list-style-type: none"> <li>• Select the List Columns Body Style for the list report.</li> <li>• Click the Green value.</li> </ul>
Condition Explorer	<ul style="list-style-type: none"> <li>• Background Color, Web Safe Colors, light green #CCFFCC, (third row from bottom, second column from right).</li> </ul>
Toolbar	<ul style="list-style-type: none"> <li>• Double-click Explorer bar to turn off conditional formatting.</li> <li>• Cut the Green or White column.</li> </ul>
Properties pane, Properties cell	<ul style="list-style-type: none"> <li>• Make the Green or White data item a property of the list report.</li> </ul>
Toolbar	<ul style="list-style-type: none"> <li>• Run the report.</li> </ul>

## Workshop 1: Results

Originally, the calculation for the Green or White calculated data item appears as shown below:



## Workshop 1: Results (cont'd)

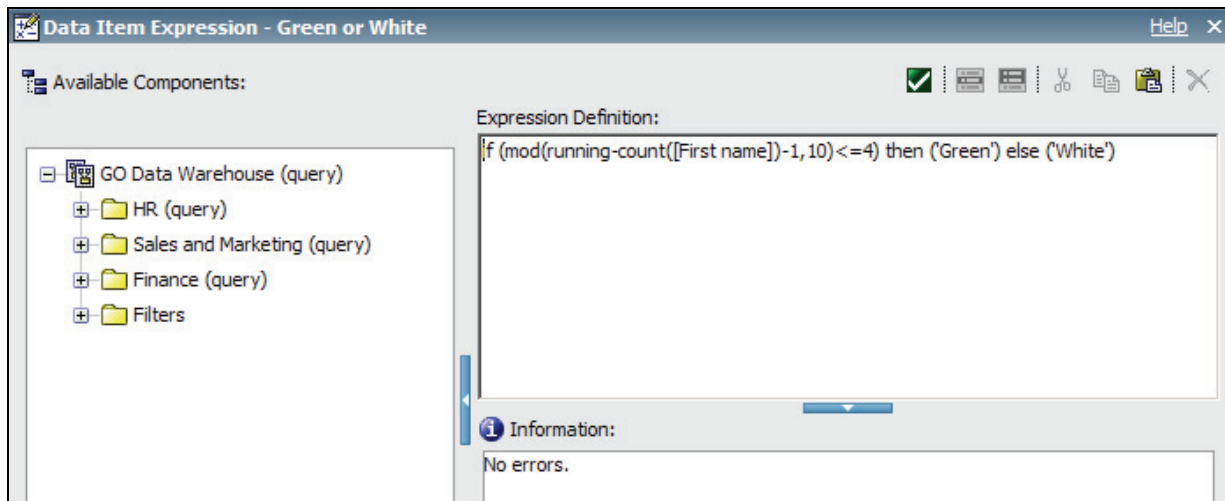
When you first add the Green or White column and run the report, the result appears as shown below:

First name	Last name	Work phone	Extension	Fax	Email	Date hired	Green or White
Aaghie	Heiman	+(41) 17 12 13 11	9676	+(41) 17 12 61 82	AHeiman@grtd123.com	Apr 28, 2003	0
Aaltje	Hansen	+(41) 17 12 13 11	9640	+(41) 17 12 61 82	AHansen@grtd123.com	Jan 10, 2005	1
Abel	Antunes	+55 (11) 344-4444	2605	+55 (11) 333-2223	AAntunes@grtd123.com	Dec 27, 2002	2
Abram	Ruiz	+(41) 17 12 13 11	9762	+(41) 17 12 61 82	ARuiz@grtd123.com	Oct 29, 2002	3
Ada	Morales	+35 94 322 3540	7693	+35 91 548 1637	AMorales@grtd123.com	Feb 7, 2003	4
Adara	Cruz	+(39) 02 79 53 780	7704	+(39) 02 79 53 477	ACruz@grtd123.com	Sep 19, 2003	5
Adda	Heijman	+(41) 17 12 13 11	9639	+(41) 17 12 61 82	AHeijman@grtd123.com	Apr 15, 2005	6
Adelaide	Wiesinger	+(41) 17 12 13 11	9662	+(41) 17 12 61 82	AWiesinger@grtd123.com	Dec 23, 2003	7
Adeline	Arnaud	+33 1 68 94 52 20	3260	+33 1 68 94 56 60	AArnaud@grtd123.com	Mar 15, 2005	8
Adelma	Ortiz	+(39) 02 79 53 780	7705	+(39) 02 79 53 477	AOrtiz@grtd123.com	Jan 7, 2005	9
Adriaantje	Haanraads	+(41) 17 12 13 11	9638	+(41) 17 12 61 82	AHaanraads@grtd123.com	Apr 26, 2005	0
Adriana	Iacobucci	+(41) 17 12 13 11	9691	+(41) 17 12 61 82	AIacobucci@grtd123.com	May 9, 2001	1
Adrien	Martin	+32 16 20.73.21	3354	+32 16 20.73.32	AMartin1@grtd123.com	Apr 18, 2005	2
Adrienne	Roche	+33 1 68 94 52 20	3724	+33 1 68 94 56 60	ARoche@grtd123.com	Sep 10, 1999	3
Aert	Haak	+(41) 17 12 13 11	9787	+(41) 17 12 61 82	AHaak@grtd123.com	May 30, 2005	4
Aert	Meyer	+31 (0)20 692 93 94	6587	+31 (0)20 692 93 06	AMeyer@grtd123.com	May 17, 2001	5
Agatha	Reyes	+35 94 322 3540	7692	+35 91 548 1637	AREyes@grtd123.com	Oct 20, 2003	6
Agathe	Roque	+32 16 20.73.21	3715	+32 16 20.73.32	ARoque@grtd123.com	Jun 5, 2007	7
Agnelo	Chavez	+(41) 17 12 13 11	9761	+(41) 17 12 61 82	AChavez@grtd123.com	Feb 23, 2006	8
Agnes	Ramos	+(41) 17 12 13 11	9645	+(41) 17 12 61 82	ARamos@grtd123.com	Jun 14, 2004	9



## Workshop 1: Results (cont'd)

The modified calculation for the Green or White calculated data item appears as shown below:

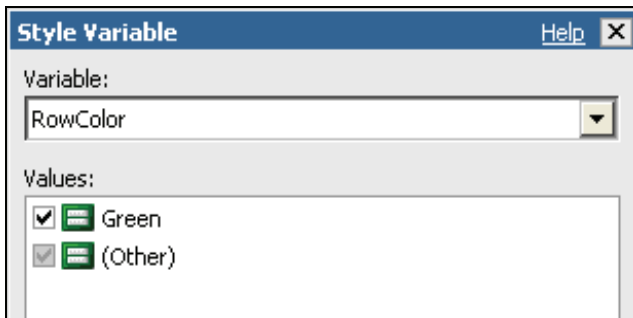


When you modify the Green or White calculation and run the report a second time, the result appears as shown below:

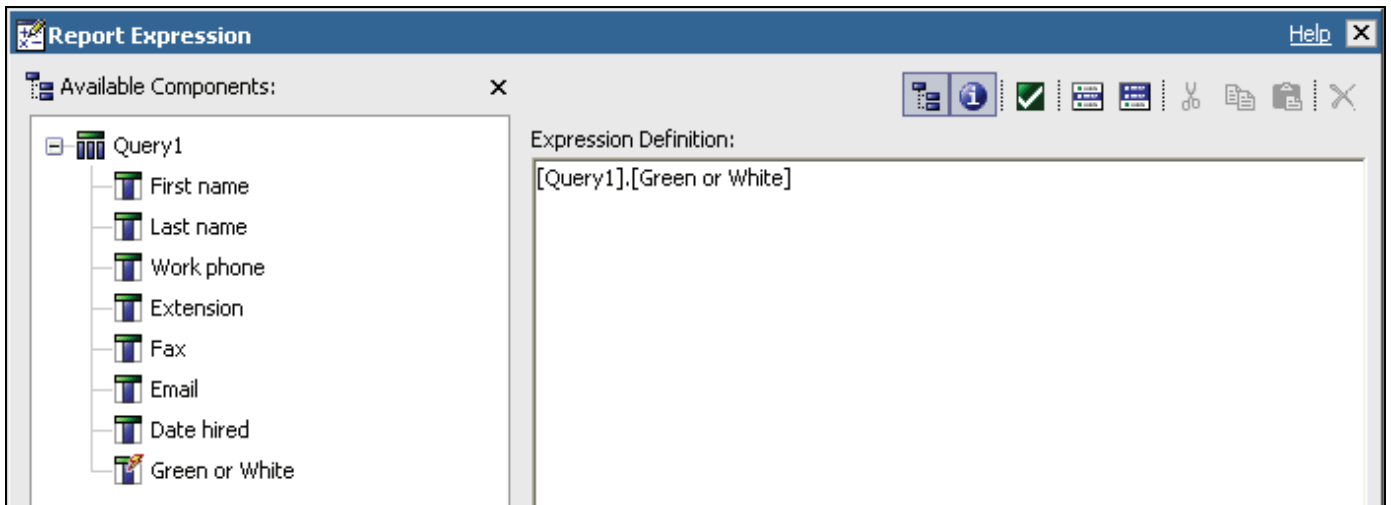
First name	Last name	Work phone	Extension	Fax	Email	Date hired	Green or White
Aaghie	Heiman	+(41) 17 12 13 11	9676	+(41) 17 12 61 82	AHeiman@grtd123.com	Apr 28, 2003	Green
Aaltje	Hansen	+(41) 17 12 13 11	9640	+(41) 17 12 61 82	AHansen@grtd123.com	Jan 10, 2005	Green
Abel	Antunes	+55 (11) 344-4444	2605	+55 (11) 333-2223	AAntunes@grtd123.com	Dec 27, 2002	Green
Abram	Ruiz	+(41) 17 12 13 11	9762	+(41) 17 12 61 82	ARuiz@grtd123.com	Oct 29, 2002	Green
Ada	Morales	+35 94 322 3540	7693	+35 91 548 1637	AMorales@grtd123.com	Feb 7, 2003	Green
Adara	Cruz	+(39) 02 79 53 780	7704	+(39) 02 79 53 477	ACruz@grtd123.com	Sep 19, 2003	White
Adda	Heijman	+(41) 17 12 13 11	9639	+(41) 17 12 61 82	AHeijman@grtd123.com	Apr 15, 2005	White
Adelaide	Wiesinger	+(41) 17 12 13 11	9662	+(41) 17 12 61 82	AWiesinger@grtd123.com	Dec 23, 2003	White
Adeline	Arnaud	+33 1 68 94 52 20	3260	+33 1 68 94 56 60	AArnaud@grtd123.com	Mar 15, 2005	White
Adelma	Ortiz	+(39) 02 79 53 780	7705	+(39) 02 79 53 477	AOrtiz@grtd123.com	Jan 7, 2005	White
Adriaantje	Haanraads	+(41) 17 12 13 11	9638	+(41) 17 12 61 82	AHaanraads@grtd123.com	Apr 26, 2005	Green
Adriana	Iacobucci	+(41) 17 12 13 11	9691	+(41) 17 12 61 82	AIacobucci@grtd123.com	May 9, 2001	Green

## Workshop 1: Results (cont'd)

The value you add to the RowColor variable appears as shown below:

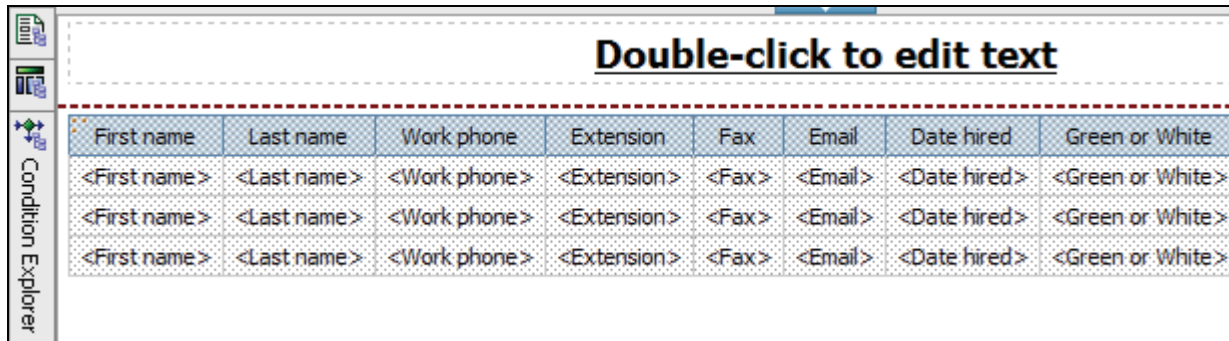


The expression for the RowColor variable appears as shown below:



## Workshop 1: Results (cont'd)

When you format the list columns to be highlighted in green for the Green value, the result appears as shown below:



First name	Last name	Work phone	Extension	Fax	Email	Date hired	Green or White
<First name>	<Last name>	<Work phone>	<Extension>	<Fax>	<Email>	<Date hired>	<Green or White>
<First name>	<Last name>	<Work phone>	<Extension>	<Fax>	<Email>	<Date hired>	<Green or White>
<First name>	<Last name>	<Work phone>	<Extension>	<Fax>	<Email>	<Date hired>	<Green or White>

When you run the report, the result appears as shown below:

First name	Last name	Work phone	Extension	Fax	Email	Date hired
Aaghie	Heiman	+(41) 17 12 13 11	9676	+(41) 17 12 61 82	AHeiman@grtd123.com	Apr 28, 2003
Aaltje	Hansen	+(41) 17 12 13 11	9640	+(41) 17 12 61 82	AHansen@grtd123.com	Jan 10, 2005
Abel	Antunes	+55 (11) 344-4444	2605	+55 (11) 333-2223	AAntunes@grtd123.com	Dec 27, 2002
Abram	Ruiz	+(41) 17 12 13 11	9762	+(41) 17 12 61 82	ARuiz@grtd123.com	Oct 29, 2002
Ada	Morales	+35 94 322 3540	7693	+35 91 548 1637	AMorales@grtd123.com	Feb 7, 2003
Adara	Cruz	+(39) 02 79 53 780	7704	+(39) 02 79 53 477	ACruz@grtd123.com	Sep 19, 2003
Adda	Heijman	+(41) 17 12 13 11	9639	+(41) 17 12 61 82	AHeijman@grtd123.com	Apr 15, 2005
Adelaide	Wiesinger	+(41) 17 12 13 11	9662	+(41) 17 12 61 82	AWiesinger@grtd123.com	Dec 23, 2003
Adeline	Arnaud	+33 1 68 94 52 20	3260	+33 1 68 94 56 60	AArnaud@grtd123.com	Mar 15, 2005
Adelma	Ortiz	+(39) 02 79 53 780	7705	+(39) 02 79 53 477	AOrtiz@grtd123.com	Jan 7, 2005
Adriaantje	Haanraads	+(41) 17 12 13 11	9638	+(41) 17 12 61 82	AHaanraads@grtd123.com	Apr 26, 2005
Adriana	Iacobucci	+(41) 17 12 13 11	9691	+(41) 17 12 61 82	AIacobucci@grtd123.com	May 9, 2001
Adrien	Martin	+32 16 20.73.21	3354	+32 16 20.73.32	AMartin1@grtd123.com	Apr 18, 2005
Adrienne	Roche	+33 1 68 94 52 20	3724	+33 1 68 94 56 60	ARoche@grtd123.com	Sep 10, 1999
Aert	Haak	+(41) 17 12 13 11	9787	+(41) 17 12 61 82	AHaak@grtd123.com	May 30, 2005
Aert	Meyer	+31 (0)20 692 93 94	6587	+31 (0)20 692 93 06	AMeyer@grtd123.com	May 17, 2001

## Workshop 1: Step-by-Step Instructions

Server: localhost  
User/ Password: brettonf/Education1!  
Studio: Report Studio  
Package: GO Data Warehouse (query)  
Report Type: List  
Folder: Sales and Marketing (query)  
Namespace: Sales (query)

### Task 1. Create a list report with a calculated column.

1. In **Report Studio**, click **File**, **Open**, and navigate to **Public Folders\B5159\07\_Create Additional Advanced Reports\Workshop 1 Start**, and then click **Open**.
2. Point to **Query Explorer**, and then click **Query1**.
3. In the **Insertable Objects** pane, click the **Toolbox** tab, and then drag a **Data Item** object to the **Data Items** pane.
4. In the **Data Item Expression** dialog box, create the following expression:  
**mod(running-count([First name])-1,10)**
5. Validate the expression, and then click **OK**.
6. In the **Properties** pane, change the **Name** property to **Green or White**.  
You will add the Green or White data item to see the values returned in the report.

7. Point to **Page Explorer**, click **Page1**, and then in the **Insertable Objects** pane, click the **Data Items** tab.
8. From the **Insertable Objects** pane, drag the **Green or White** item to the end of the list report, and then run the report.

In the rows, the Green or White value is displays a count from 0 to 9. These values will be used to apply conditional formatting to alternating rows of 5 in the report.

9. Close **IBM Cognos Viewer**, and then in the list report, double-click the **Green or White** column.

You want to modify the expression so that if the remainder is less than or equal to 4, the cell will display the word "Green", otherwise, the cell will display the word "White".

10. Modify the expression as follows:  
**if (mod(running-count([First name])-1,10)<=4) then ('Green') else ('White')**
11. Validate the expression, and then click **OK**.
12. Run the report to observe the data change in the **Green or White** column, and then close **IBM Cognos Viewer**.

## **Task 2. Create a conditional variable.**

1. Click any column in the list, in the **Properties** pane, click **Select Ancestor**, and then click **List Columns Body Style**.
2. In the **Properties** pane, double-click the **Style Variable** cell.
3. From the **Variable** list, click **<New string variable>**, and type **RowColor**.
4. Under the **Conditionally author for these values** box, click **Add**, type **Green**, and then click **OK** twice to close each dialog box.

5. From the **Available Components** pane, drag the **Green or White** item to the **Expression Definition** pane.
6. Validate the expression to ensure there are no errors, and then click **OK**.
7. Click **OK** to close the **Style Variable** dialog box.

### **Task 3. Apply conditional formatting to the report, and then run the report.**

You will now specify that even rows be highlighted in green.

1. Point to **Condition Explorer**, and then click **Green**.

The Explorer bar turns green to indicate that conditional formatting is turned on.

2. On the toolbar, click **Background Color**, and then click the **Web Safe Colors** tab.
3. Click the light green box three rows up, in the second column from the right (**#CCFFCC**).

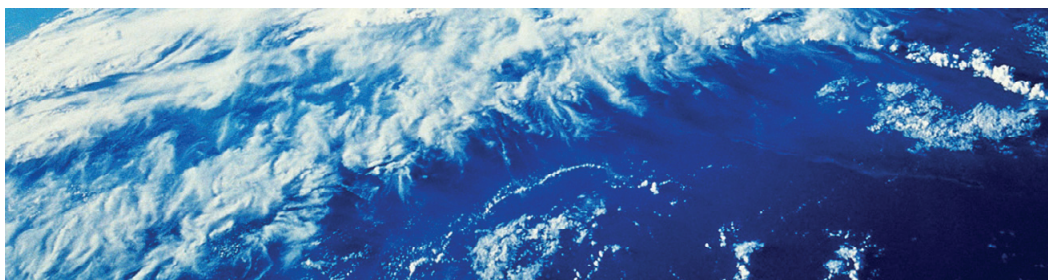
The list columns are highlighted in green.

4. Double-click the **Explorer bar** to turn off conditional formatting, and then cut the **Green or White** column from the list report.
5. Click the list **Container Selector** to select the entire list.
6. In the **Properties** pane, double-click the **Properties** cell, select the **Green or White** check box, and then click **OK**.
7. Run the report.
8. Close **IBM Cognos Viewer**, close **IBM Cognos Connection**, and then close **Report Studio**.



# **Examine the Report Specification**

IBM Cognos BI



**Business Analytics**

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## Objectives

- At the end of this course, you should be able to:
  - examine the report specification structure
  - save and edit reports locally
  - discuss considerations for modifying a report specification
  - discuss adding custom toolbox objects and custom template options

If you intend to teach this module, students should be familiar with:

- Creating lists and crosstabs

Suggested modules to reference:

- Introduction to the Reporting Application
- Create List and Crosstab Reports

**INTERACTION - Star Sticker:** Star each objective as it is introduced.

## Work with the Report Specification

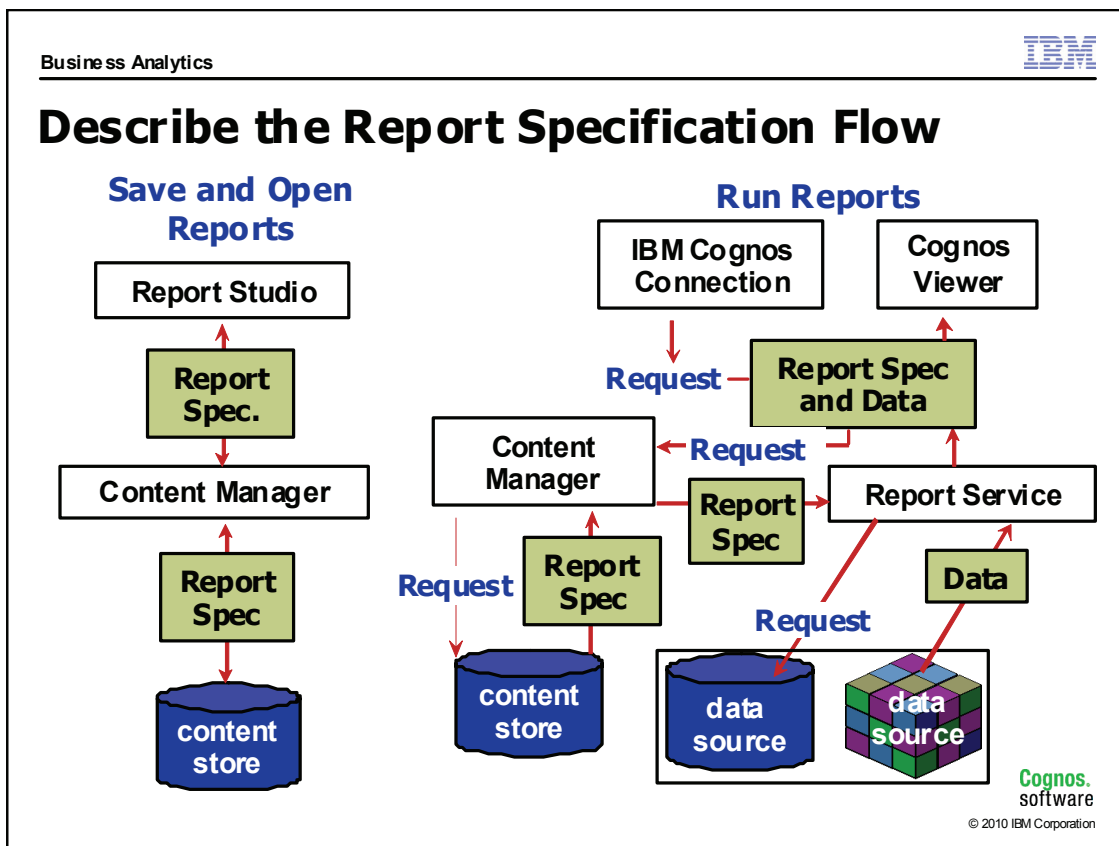
- reports consist of report specifications created in XML
- the report specification defines the report contents:
  - queries and filters used to retrieve data
  - data containers (lists, crosstabs, and so on) used to display data
  - other objects in the report layout and the styles used to format these objects

You can use the specification for a report to:

- view the XML code to better understand report contents
- save reports locally and then import them into the IBM Cognos BI environment
- modify a report by editing the XML code in the report specification
- share report specifications with report authors working in different environments
- copy the specification code for a specific report object such as an image or a page header and then reuse this code to add this object to other specification files

---

You can create a report specification entirely in XML, independent of the user interface and then open the report in Report Studio. The report specification can appear complex. Emphasize that it is possible to work with and modify the code with a basic understanding of how it works.



When you create a report, the specification is created on the local client machine. When you save a report, Report Studio sends the specification to Content Manager. Content Manager then stores the specification in the content store.

When you run a report, the request is sent in two parts:

1. to the Content Manager to retrieve the report specification from the content store
2. to the database to retrieve the report data

Once data is returned from the database, and the report spec is returned from Content Manager, the two are displayed in IBM Cognos Viewer by the report service.

If you edit a previously-saved report, changes to the report specification are applied only on your client machine until you save the report. Once saved, the specification is updated in the content store.

When you run a report in Report Studio, Content Manager does not retrieve the specification. Because the specification is already open, Report Studio can send the specification.

**INTERACTION - Markup > Laser Tool:** Point to each step to emphasize the overall process.

## Describe the Report Specification Structure

- A report specification has four main sections:
  - header section
  - queries section
  - layouts section
  - report variables section

Depending on the report, the report specification may not include all of these sections.

**INTERACTION - Toolbar Emoticons > Raise Hand:** Ask participants if anyone is familiar with XML and CSS(Cascading Style Sheets)

## Demo 1: Examine a Report Specification and Copy it to the Clipboard

### Purpose:

To learn more about report specifications, you want to create a simple list report and view the XML specification. You will copy this report specification to the clipboard, and then re-open the specification in Report Studio.

Server: localhost  
User/Password: brettanf/Education1!  
Studio: Report Studio  
Package: Go Data Warehouse (query)  
Report Type: List  
Folder: Sales and Marketing (query)  
Namespace: Sales (query)

### Task 1. Create a list report

1. In the **Insertable Objects** pane, add the following query items to the list report:
  - Order Method → Order method type
  - Sales fact → Revenue

2. Run the report.

The results appear as follows:

Order method type	Revenue
E-mail	179,843,044.16
Fax	70,073,542.01
Mail	46,091,338.97
Sales visit	310,194,834
Special	27,351,320.25
Telephone	340,985,781.06
Web	3,712,235,908.4

3. Close **IBM Cognos Viewer**.

This demo is similar to Demo 2 in that both demos illustrate how to save and open a report specification locally. Demo 1 uses the clipboard to accomplish opening. However, with this method if the user wanted to save the report locally, they would have to open an editor, paste the report spec from the clipboard, and then save the file. The reverse must occur to open a file using the clipboard menu option in Report Studio.

For users who must save locally on a regular basis, Demo 2 shows how to make a menu item available that will save and open report specifications in a single step.

**INTERACTION - Toolbar Emoticons > Raise Hand:** Ask participants if anyone currently needs to save reports locally on a regular basis. Remind them that this process does not require administration access.

## Task 2. View the report specification.

1. From the **Tools** menu, click **Show Specification**.

The Report Specification for the entire report displays in XML. The browser window includes controls to open and close the XML elements, which means that it does not contain executable XML. Therefore, Report Studio does not let you copy the code displayed in this window.

This report specification contains three sections: the specification header section, the queries section, and the layouts section.

The header section specifies the namespace the report uses as well as the language and package (as seen in the first two lines).

The queries section contains information about the query used to retrieve data for the list report (as seen in the <queries> section).

The layouts section describes the objects that appear on Page1 of the report (as seen in the <layout> section).

2. In the specification, collapse the **<queries>** tag.
3. Close the **Report Specification XML** window.
4. Click the list column body for **Order method type**.
5. From the **Tools** menu, click **Show Specification (Selection)**.

The specification for the Order method type column body displays. It specifies that this object is formatted using the "lc" style and that the data source for this column body is the Order method type data item.

6. Close the **Report Specification XML** window.

### Task 3. Copy the report specification and open the report from the clipboard.

1. From the **Tools** menu, click **Copy Report to Clipboard**.
2. Create a new **Crosstab** report, without saving the existing list report.
3. From the **Tools** menu, click **Open Report from Clipboard**.

Report Studio uses the specification you copied to the clipboard to open the report you created earlier in this demo.

The result appears as shown below:

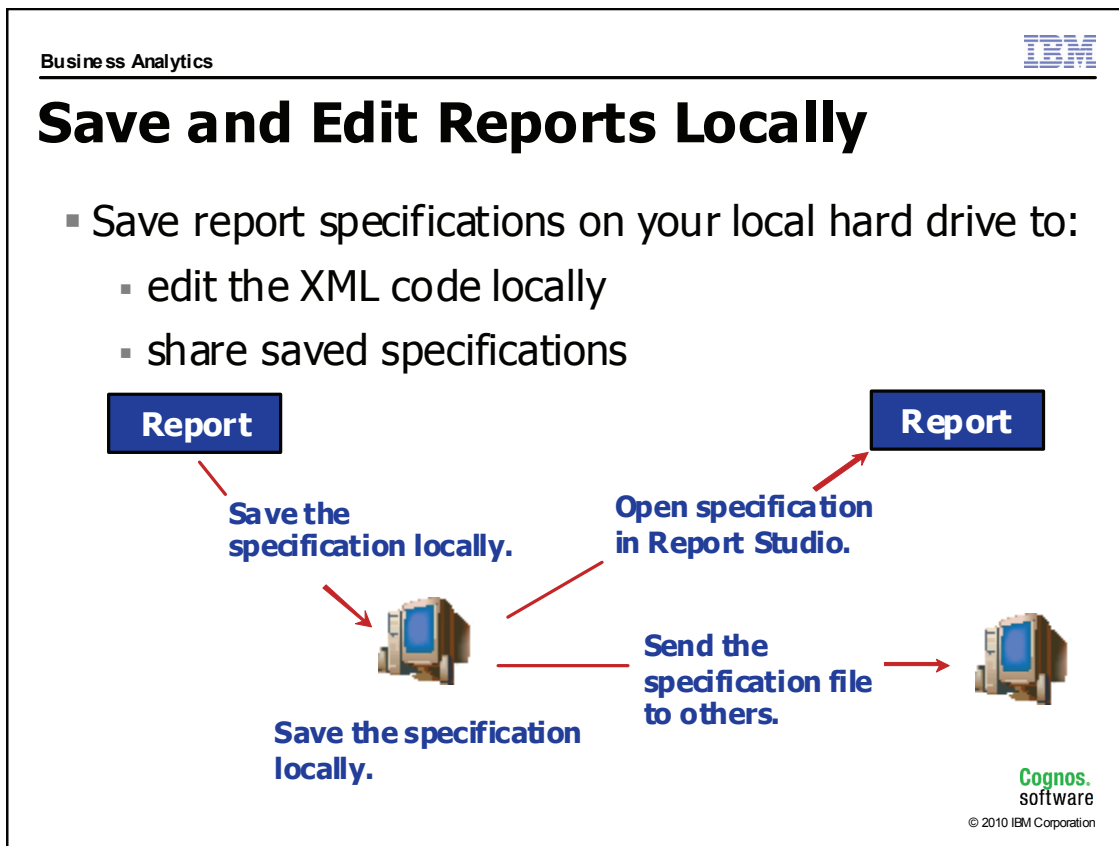
Double-click to edit text	
Order method type	Revenue
<Order method type>	<Revenue>
<Order method type>	<Revenue>
<Order method type>	<Revenue>

Leave Report Studio open for the next demo.

#### Results:

You created a simple list report viewed the XML specification. You then copied this report specification to the clipboard and re-opened it in Report Studio.





Editing report specifications locally is useful if you must edit reports when you are not online.

Before you can save report specifications locally, you must:

- register the lfa.dll (Local File Access) file on your computer (obtain file from your operating system administrator)
- select the Allow local file access option in Report Studio
- enable the required ActiveX controls in Internet Explorer

Report specifications are text files that are typically very small. Therefore, you can easily share them by disk and e-mail.

You can also use report specs to automate a change to a large number of reports by using the SDK. For example: You must update all reports to use the most recently published package. To ensure that reports use the latest run-time model, you can open each report and save it. However, using the SDK, you can develop an application to automate this process.

**INTERACTION - Whiteboard:** Ask participants for some reasons why it would be helpful to be able to save the report specifications locally.

List each suggestion on the whiteboard.

## Modify a Report Specification: Considerations

- Ensure the XML code creates a valid specification.
- For example:
  - close all tags with `</...>`
  - Ensure XML syntax for each tag is correct
  - preserve the hierarchy of tags (e.g. layouts -> layout -> reportPages -> page)

Because editors such as Notepad do not validate the report specification, it is important to use the correct syntax. Otherwise, when you edit a report specification and then run the report in Report Studio, you will receive an error message.

The error message describes the problems you must correct in order for the specification to run successfully.

If the report specification is written in a language that is not ANSI supported, save the specification file with UTF-8 encoding.

---

To edit a report in an environment that lets you validate report syntax and structure, edit the report in Report Studio instead of working directly with the report specification

## Demo 2: Save and Edit a Report Specification Locally

### Purpose:

You want to create a template that contains a generic cover page that professional authors can use to create a report. You must be able to edit it when not online. You will edit the template specification locally, open it in Report Studio to ensure it was updated, and save it in IBM Cognos Connection for other professional authors to use.

Server: localhost  
 User/Password: brettonf/Education1!  
 Studio: Report Studio  
 Package: Go Data Warehouse (query)  
 Report Type: Blank  
 Folder: Sales and Marketing (query)  
 Namespace: Sales (query)

### Task 1. Register the lfa.dll file.

Before reports can be saved locally, you must register the lfa.dll file.

1. From the **Start** menu, click **Run**, type **cmd** and then click **OK**.
2. At the command prompt, type **cd <Cognos install path>\Program Files\IBM\cognos\c10\bin**, and then press **Enter**.

If you need to change drives type **<Drive Letter>:** and then click **Enter**.

3. At the command prompt, type **regsvr32 lfa.dll**, and then press **Enter**.

A message appears indicating that the file was registered successfully.

4. Click **OK**, and then close the command window.

---

This demo and workshop 1 should be instructor only if presented onsite.

Saving reports locally may be a requirement for organizations whose policy is to save all reports to a source code controlled directory.

This demo contrasts with Demo1 to illustrate how simple it is to save and open report specifications locally. This demo may not be applicable to participants whose corporations do not allow the registration of a dll on their servers.

Task 1, Step 3. There is a space between regsvr32 and lfa.dll. This file will be provided to you by the IBM Cognos administrator.

## Task 2. Set the Internet security and Report Studio options.

1. In **Internet Explorer**, from the **Tools** menu, click **Internet Options**, and then click the **Security** tab.
2. Ensure that **Internet** is selected, and then click **Custom Level**.
3. Set **Initialize and script ActiveX controls not marked as safe for scripting** to **Enable**.
4. Click **OK**, then **Yes**, then **OK**.
5. In **Report Studio**, from the **Tools** menu, click **Options**, and then click the **Advanced** tab.
6. Select **Allow local file access**, and then click **OK**.

## Task 3. Create a report and convert to a Template.

1. Create a **Blank** report, and from the **Toolbox** tab, drag a **Block** to the work area.
2. Drag an **Image** into the block.
3. Double-click the image, browse to **http://localhost:88/ibmcognos/samples/images/cover 2.jpg**, and then click **OK** twice.
4. Click the block, and then set the following properties:
  - Horizontal Alignment: **Right**
  - Size & Overflow: **Height = 80px**
5. From the **Toolbox** tab, drag a **Table** below the block (accept the default number of rows and columns).

---

After task 2 step 6, click on File to show the new options ;(Local) Open and (Local) Save As

6. Drag an **Image** to the left table cell.
7. Double-click the image, browse to **http://localhost:88/ibmcognos/samples/images/cover 1.jpg**, and then click **OK** twice.
8. Drag a **Text Item** to the right table cell, and then type **The Great Outdoors Company**.
9. Apply the following formatting to the text:
  - Font size = **24 pt**
  - **Bold**
  - Foreground Color: **Navy**
10. Click **Page Explorer**, click **Report Pages**, and then drag a **Page** to the **Report Pages** area.

Report authors can use this second page to add their own report data later.
11. Rename **Page1** to **CoverPage**, and then from the **File** menu, click **Convert to Template**.
12. Save this template in **IBM Cognos Connection** so that it can be used by other report authors.

Location: **Public Folders/B5159**

Name: **Demo2-Examine the Report Specification\_Template**

## Task 4. Save the template locally and then edit the report specification.

1. From the **File** menu, click **(Local) Save As** and save the file as **Demo2-Examine the Report Specification\_Template.xml** to **C:\Edcognos\B5159\08-Examine\_the\_Report\_Specification**.
2. In **Windows Explorer**, open **Demo2-Examine the Report Specification\_Template.xml** in **Notepad**.

The specification header section describes the namespace used to identify this report and indicates that the specification is a template.

The layouts section specifies that this report contains two pages and describes each one: `<page name="CoverPage">`, `<page name="Page2">`

This report has no queries, so this report specification does not contain a queries section.

3. In the specification, locate **The Great Outdoors Company** text item.
4. In the **<style>** tab that follows **<text item>**, change the color of the text to **red**.

The result appears as shown below:

```
<style><CSS value="font-weight:bold;font-size:24pt;color:red"/></style>
```

5. Save the file.

## Task 5. Open the modified template in Report Studio.

1. From the **File** menu, click **(Local) Open** and browse to **C:\Edcognos\B5159\08-Examine\_the\_Report\_Specification\Demo2-Examine the Report Specification\_Template.xml**.

The result appears as shown below:



The modified cover page appears. Notice the text changed from Navy to Red.

2. Save the report in **IBM Cognos Connection, Public Folders\B5159**, as **Demo2-Examine the Report Specification\_Template**.

The updated template is saved in IBM Cognos Connection and is available to other report authors.

3. Close **Notepad**, and then close **Windows Explorer**.

Leave Report Studio open for the workshop.

### Results:

**You created a template that contains a generic cover page that professional authors can use to create a report. You saved the template specification locally to modify it when not online. You edited the template specification locally and opened it in Report Studio and saved it in IBM Cognos Connection so it can be used by other professional authors.**

## Create Custom Toolbox and Template Objects

- If you have access to the XML configuration files for the IBM Cognos BI server, you can customize the objects that appear in the Report Studio user interface.
- This can make it easier to create reports that meet your organization's business requirements.

Once added to the Report Studio user interface, custom templates and toolbox objects are available to all users with access to Report Studio.

Because you add custom objects by manually editing server-side configuration files, your changes may not be preserved during maintenance or version upgrades.

It is recommended that you back up these configuration files before and after you edit them.

---

Professional authors may not be granted access to these files, and therefore may need to collaborate with the server administrator to implement this functionality.

Examples of customization:

- if the Report Studio Toolbox tab does not contain the objects you require, you can add or customize the objects available on this tab
- if the existing Report Studio template options do not meet your requirements, you can add or customize the template options available when creating new reports

An example of customizing the toolbox is shown in *IBM Cognos BI Administration (v10.1), Module 10 Additional Configuration and Customization*.



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## Specify How a Custom Toolbox Object will Appear Once Added to a Report

- To add a new toolbox object, you must first add XML code to the ToolboxControls.xml file.
- This code specifies how the object will appear and behave once it is added to a report from the Toolbox tab.

**Code Specifying the Appearance and Behavior of the List and Image Objects**

```

<!-- List -->
<list id="list" horizontalPagination="true">
  <listColumnBodyStyle/>
  <listColumnTitleStyle/>
  <listColumnStyle/>
  <style>
    <CSS value="border-collapse:collapse"/>
    <defaultStyles>
      <defaultstyle refstyle="ls"/>
    </defaultStyles>
  </style>
</list>

<!-- Image -->
<image id="image">
  <dataSource>
    <staticvalue/>
  </dataSource>
</image>

```



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When you create the object in the ToolboxControls.xml file, specify object properties such as the CSS styles used to format the object and data sources used to create the object.

To obtain the XML code used to create an object, you can create the object in Report Studio and then copy the specification for this object to the clipboard.

In the slide example,

- the class attribute in the list tag uses list styles from the GlobalReportStyles.css file (<IBM Cognos BI Installation Location>Program Files\Cognos\c10\bin) to format this object
  - the specification for the Image object indicates that a static value specified by the user will act as a data source for the image
  - The XML files are found at IBM Cognos BI Installation Location>Program Files\Cognos\c10\webcontent\pat\res
- This technique is demonstrated in the *IBM Cognos BI Administration* course.

## Determine How and When Custom Objects Will Appear on the Toolbox Tab

- To tell Report Studio where to find the definition for the new toolbox object, you must add XML code to the Toolbox.xml file.
- This code will point to the object definition you added to the ToolboxControls.xml file.

### Reference to the Text Item Object Defined in the ToolboxControls.xml file

```
<listview id="Toolbox_Pagesview" classPrefix="clsListItem_tb">
  <listitems>
    <listitem controlRef="page" idsLabel="IDS_EL_page"
idsTooltip="IDS_EL_page" smallIcon="page.gif"/>
    <listitem controlRef="pageSet" idsLabel="IDS_EL_pageSet"
idsTooltip="IDS_EL_pageSet" smallIcon="pageSet.gif"/>
  </listitems>
</listview>
```

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The Toolbox.xml file references the various toolbox objects. It also specifies how the object will appear on the toolbox tab, through properties such as the label, the tooltip, and the icon image.

The Toolbox.xml file has different sections. Each section specifies the toolbox objects that appear for a specific toolbox view in Report Studio.

In the Toolbox.xml file, use a controlRef attribute to point to the object definition you added to the ToolboxControls.xml file; the attribute must be named the same in both files.

---

The id attributes for each Toolbox.xml view are predetermined. You cannot add your own view id attributes.

It is important to add this code to the appropriate section of the Toolbox file so that the object appears in the appropriate toolbox view.

For example, the objects listed in the LayoutView section of the Toolbox.xml file will appear on the Toolbox tab only when report authors are working on the layout of report pages.

This technique is demonstrated in the *IBM Cognos BI Administration* course.

Re-sorting the Toolbox and Template icons can be done by manually changing the order in the respective XML files.



## Examine Existing Templates

- When you create a report in Report Studio, you can choose from a variety of existing templates.
- If the default options that appear in the New dialog box do not meet your requirements, you can add additional template options to this dialog box.

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To add a new template option to the New dialog box:

- specify the contents of the template
- point to this specification
- add a graphic that will represent this template option
- add a label for the template

## Specify the Custom Template Contents

- To add a new template:
  - add XML code defining the new template to the templates.xml file
  - add code to the Resources.xml file to identify the new template to Report Studio

**Code used to  
define the Blank  
Template in the  
templates.xml file**

```
<template name="Blank">
  <report expressionLocale="en-us">
    <modelPath/>
    <drillBehavior modelBasedDrillThru="true"/>
  </report>
  <layouts>
    <layout>
      <reportPages>
        <page>
          <style>
            <defaultstyles>
              <defaultstyle refstyle="pg"/>
            </defaultstyles>
          </style>
        </page>
      </reportPages>
    </layout>
  </layouts>
</template>
```

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The templates defined in the templates.xml file are report specifications.

For best results, create the template you require in the Report Studio user interface, and then copy the XML specification for the report and paste it into the templates.xml file.

---

This technique is demonstrated in the *IBM Cognos BI Administration* course.

## Summary

- At the end of this course, you should be able to:
  - examine the report specification structure
  - save and edit reports locally
  - discuss considerations for modifying a report specification
  - discuss adding custom toolbox objects and custom template options

**INTERACTION - Check Sticker:** Check each objective as it is summarized

## Workshop 1: Update a Report Layout by Importing New Specification Code

Professional authors at The Great Outdoors Company are required to follow company standards regarding page layout and formatting. Recently, the company decided to update report headers and footers to incorporate additional elements and improved styles.

In the report specification, the sections of code that describe the page header and footer are grouped together. Therefore, you can copy the necessary block of code from the new standard template specification and replace the old header and footer code in the report specification to update your report layout

To accomplish this:

- Open the specification for the new template (C:\Edcognos\B5159\08-Examine\_the\_Report\_Specification\Wkshp 1\_Examine the Report Specification\_Template.xml).
- Highlight the XML code for the page header and page footer in the template specification, and then use this code to replace the header and footer code in the report specification (C:\Edcognos\B5159\08-Examine\_the\_Report\_Specification\Wkshp 1\_Examine the Report Specification\_Report.xml).
- Save the update report specification, and open it in Report Studio.

For more detailed information outlined as tasks, see the Task Table section.

For the final results, see the Workshop Results section that follows the Task Table section.

---

If demo 2 was presented as an instructor only demo, this workshop will need to be presented instructor only as well. You can also replace the header and footer in the report by reusing the layout components in Report Studio.

## Workshop 1: Task Table

### Task 1: Open the report specification in Notepad, and view the report in Report Studio.

Where to Work	Hints
Notepad	<ul style="list-style-type: none"> <li>• (Local) Open, Wkshp 1_Examine the Report Specification_Report.xml.</li> </ul>
Report Studio, File menu	<ul style="list-style-type: none"> <li>• Observe the header and footer format.</li> </ul>

### Task 2: Replace the header and footer in the report specification.

Where to Work	Hints
Windows Explorer	<ul style="list-style-type: none"> <li>• C:\Edcognos\B5159\08-Examine_the_Report_Specification File: Wkshp1_Examine the Report Specification_Template.xml.</li> </ul>
Notepad	<ul style="list-style-type: none"> <li>• Highlight from &lt;pageHeader&gt; to &lt;/pageFooter&gt;, then copy to clipboard.</li> <li>• Paste this code over the &lt;pageHeader&gt; to &lt;/pageFooter&gt; code in C:\Edcognos\B5159\08-Examine_the_Report_Specification Wkshp1_Examine the Report Specification_Report.xml file</li> </ul>
Edit Menu	<ul style="list-style-type: none"> <li>• Save the file.</li> </ul>

### Task 3: Open the updated report specification in Report Studio.

Where to Work	Hints
Report Studio, File menu	<ul style="list-style-type: none"> <li>• (Local) Open.</li> </ul>

If you need more information to complete a task, see the Step-by-Step instructions at the end of the Workshop.

## Workshop 1: Results

The result of the workshop is a report that appears as follows:

Sales Rep Performance				The Great Outdoors Company
City	Last name	First name	Position name	Revenue
<Country>				
<City>	<Last name>	<First name>	<Position name>	<Revenue>
<City> - Total				<Total(Revenue)>
<City>	<Last name>	<First name>	<Position name>	<Revenue>
<City> - Total				<Total(Revenue)>
<Country> - Total				<Total(Revenue)>
<Country>				
<City>	<Last name>	<First name>	<Position name>	<Revenue>
<City> - Total				<Total(Revenue)>
<City>	<Last name>	<First name>	<Position name>	<Revenue>
<City> - Total				<Total(Revenue)>
<Country> - Total				<Total(Revenue)>
Overall - Total				<Total(Revenue)>
<%PageNumber()%>				<%Today ()%>



## Workshop 1: Step-by-Step Instructions

### Task 1. Open the report specification in Notepad, and then view it in Report Studio.

1. In **Report Studio**, from the **File** menu, click **(Local) Open**.
2. Navigate to **C:\Edcognos\B5159\08-Examine\_the\_Report\_Specification**, and then click **Wkshp 1\_Examine the Report Specification\_Report.xml**.

Examine the header and footer format in this report. The header and footer each contain a table with two cells.

You want to replace the header and footer with the header and footer in the template.

### Task 2. Replace the header and footer in the report specification.

1. In **Windows Explorer**, navigate to **C:\Edcognos\B5159\08-Examine\_the\_Report\_Specification**, and open **Wkshp 1\_Examine the Report Specification\_Template.xml** in **Notepad**.
2. Highlight text from **<pageHeader>** to **</pageFooter>** (including these two tags, and then right-click **Copy**.
3. Open **Wkshp 1\_Examine the Report Specification\_Report.xml** to open the report in **Notepad**.

In **Wkshp 1\_Examine the Report Specification\_Report.xml**, highlight text from **<pageHeader>** to **</pageFooter>** (including these two tags), right-click and then click **Paste**.

4. Save the file and close both instances of **Notepad**.

### **Task 3. Open the updated report specification in Report Studio.**

1. In **Report Studio**, from the **File** menu, click **(Local) Open**.
2. Navigate to **C:\Edcognos\B5159\08-Examine\_the\_Report\_Specification**, and then click **Wkshp 1\_Examine the Report Specification\_Report.xml**.

The report opens with the updated header and footer from the template specification.

The header is now a table of two columns and two rows and the text and styles have changed.

The footer is now a row with three columns

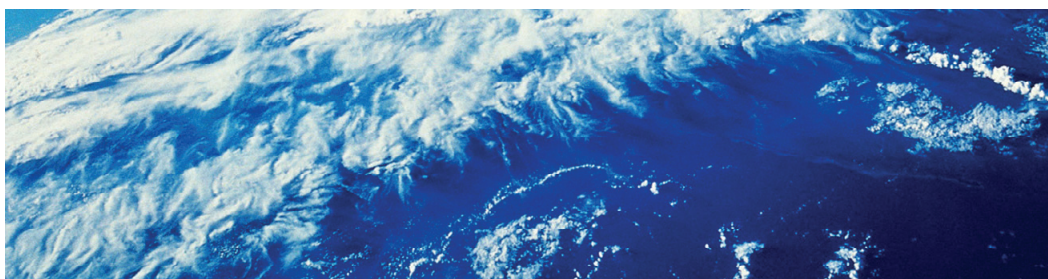
3. Close **Report Studio** without saving the report.
4. In **Internet Explorer**, from the **Tools** menu, click **Internet Options**, and then click the **Security** tab.
5. Ensure **Internet** is selected, and then click **Custom Level**.
6. Set **Initialize and script ActiveX controls not marked as safe for scripting** to **Disable**.
7. Click **OK**, then **Yes**, then **OK**.
8. Log Off.



---

# **End-to-End Workshop (Optional)**

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## End-to-End Workshop

Various managers have requested a number of reports to answer business questions pertaining to their areas of interest.

You have been provided with the requirements for each report.

You must create and deliver these reports by the end of the day.

In this workshop, you will:

- create reports to meet various business requirements
- reinforce concepts learned throughout the course

If you intend to teach this module, students should be familiar with:

Creating queries in Report Studio

Creating calculated data items

Bursting Reports

Creating prompts to let users choose how to sort data

Creating static choices and default options for prompts

Conditionally formatting alternating rows of reports

Setting up drill-through access

Using set operations

Creating list, chart, and crosstab reports

Creating master-detail relationships

Working with conditional blocks

Suggested modules to reference:

Examine the Query Model	Create Advanced Dynamic Reports
Create Reports Based on Query Relationships	Design Effective Prompts
Distribute Reports to IBM Cognos Connection Through Bursting	Create Additional Advanced Reports
Distribute Reports Through Bursting Using Email	Examine the Report Specification

## Report 1: Burst a Sales Report by Country

User/Password: **brettonf/Education1!**

Sales managers want to review details about sales in 2006. They want to view a list displaying revenue generated and quantity sold for sales to each retailer type. Within this list, they want to view a pie chart showing revenue generated by each product line for each retailer type. All of this information has to be displayed for each country, and then burst to the Web so that users can only see data for their country. For example, if a sales rep from Australia logs into IBM Cognos Connection, they must be able to view a report containing only Australian data.

To accomplish this:

- Create a list report using the GO Data Warehouse (query) package, Sales and Marketing (query) folder, Sales (query) namespace, and that includes Country, Retailer type, Quantity, and Revenue data.
- Group Country and then make Country a header instead of a column. Add totals for Quantity and Revenue.
- Filter the list to only include data for orders placed in 2006.
- Add a Pie with 3-D Visual Effects and Rounded Bevel chart to the list, and have it display Revenue by Product line. Filter the chart to only show data for orders placed in 2006.
- Add the recipients from the Burst table by country query subject and country code from the Employee by region query subject to Query1.
- Add the retailer type from the Retailers query subject and country code from Employee by region query subject to Query2.

- Create a master-detail relationship with two links between the two queries, so that the country code in the list matches country code in the chart and retailer type matches retailer type.
- Change the report title to "2006 Sales Report by Retailer Type and Product line", and make the Country item in the list header 12 pt, bold, and italic.
- Set up the burst options to burst on country and to distribute the report to recipients as directory entries.
- Save the report as Report1.
- Burst the Report1 report to generate three outputs: one each for United States, Australia, and Italy.
- Start a new browser session, and then log on as Bart Scott (scottb, Education1!) from the United States, and view the data in the report.
- Close the session in which you logged on as Bart Scott.

For more detailed information outlined as tasks, see the Task Table on the next page.

For the final results, see the Results section that follows the Task Table.

## Report 1: Task Table

**Task 1: Create a list report using the GO Data Warehouse (query) package Sales and Marketing (query) folder that displays country sales by retailer.**

Where to Work	Hints
Page Explorer	<p>Add the following data items:</p> <ul style="list-style-type: none"> <li>• [Sales (query)].[Employee by region].[Country]</li> <li>• [Sales (query)].[Retailers].[Retailer type]</li> <li>• [Sales (query)].[Sales fact].[Quantity]</li> <li>• [Sales (query)].[Sales fact].[Revenue]</li> </ul>
Toolbar	<ul style="list-style-type: none"> <li>• Group Country.</li> <li>• Create a header for Country, and then delete the column body for this item.</li> <li>• Summarize data for Quantity and Revenue (Total).</li> <li>• Add a detail filter: [Sales (query)].[Time].[Year]=2006</li> </ul>

**Task 2: Add a Pie Chart to the list.**

Where to Work	Hints
Tools menu	<ul style="list-style-type: none"> <li>• Turn off Use legacy chart authoring</li> </ul>
Toolbox	<ul style="list-style-type: none"> <li>• Pie with 3-D Visual Effects and Rounded Bevel, Query2 to the right of Revenue.</li> </ul>
Source tab	<ul style="list-style-type: none"> <li>• Measures: Revenue Series (pie slices): Product line</li> </ul>
Toolbar	<ul style="list-style-type: none"> <li>• Add a detail filter: [Sales (query)].[Time].[Year]=2006</li> </ul>



<b>Task 3: Add Recipients and Country code to Query 1.</b>	
<b>Where to Work</b>	<b>Hints</b>
Query Explorer, Query1, Source tab	<ul style="list-style-type: none"> <li>• From the Burst table by country query subject, add the Recipients query item to Query1.</li> <li>• From the Employee by region query subject, in the Codes folder, add the Country code query item to Query1.</li> </ul>
<b>Task 4: Add Retailer type and Country code to Query 2.</b>	
<b>Where to Work</b>	<b>Hints</b>
Query Explorer, Query2, Source tab	<ul style="list-style-type: none"> <li>• From the Retailers query subject, add the Retailer type query item to Query2.</li> <li>• From the Employee by region query subject, from the Codes folder, add the Country code query item to Query2.</li> </ul>
<b>Task 5: Create a master-detail relationship between the queries, add a title, and format the header.</b>	
<b>Where to Work</b>	<b>Hints</b>
Page Explorer, Page1, Data menu, Master/Detail Relationships	<ul style="list-style-type: none"> <li>• Create a new link between the Country code items in each query</li> <li>• Create a new link between the Retailer type items in each query.</li> <li>• Add the following title: "2006 Sales Report by Retailer Type and Product Line".</li> <li>• Make the Country header 12 pt, Bold, and Italic</li> </ul>

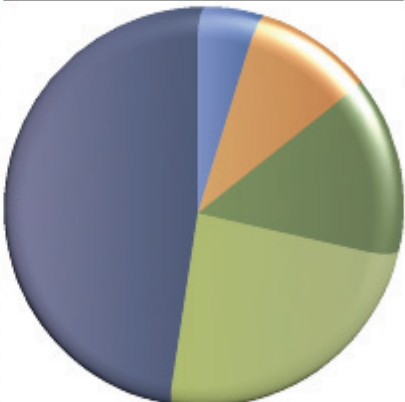
<b>Task 6: Set the burst options for the report</b>	
<b>Where to Work</b>	<b>Hints</b>
File menu, Burst Options	<ul style="list-style-type: none"> <li>• Make the report available for bursting.</li> <li>• Burst Groups: Query: Query 1 Label: Country Groups: Country</li> <li>• Burst Recipient: Query: Query1 Data Item: Recipients Type: Directory entries</li> </ul>
Toolbar	<ul style="list-style-type: none"> <li>• Save the report in the B5159 folder as Report1.</li> </ul>
<b>Task 7: Burst the report, log on as Bart Scott, and view output.</b>	
<b>Where to Work</b>	<b>Hints</b>
IBM Cognos Connection, Public Folders, B5159 folder, Report1	<ul style="list-style-type: none"> <li>• Run with options, advanced options, run in background, burst the report.</li> <li>• Start a new browser session, then log on as scottb with password Education1!, view the output versions for this report in HTML.</li> <li>• Close the session in which you are logged on as scottb.</li> </ul>

## Report 1: Results

Before you add the pie chart to the report, the results appear as follows:

Retailer type	Quantity	Revenue
<Country>		
<Retailer type>	<Quantity>	<Revenue>
<Country> - Total	<Total(Quantity)>	<Total(Revenue)>
<Country>		
<Retailer type>	<Quantity>	<Revenue>
<Country> - Total	<Total(Quantity)>	<Total(Revenue)>
Overall - Total	<Total(Quantity)>	<Total(Revenue)>

When you add the pie chart to the report and format the report, the results appear as follows:

Retailer type	Quantity	Revenue	Pie Chart
<Country>			
<Retailer type>	<Quantity>	<Revenue>	 <p>Default measure: &lt;Revenue&gt;      Series (pie slices): &lt;#Product line#&gt;</p> <p>(Default Legend Title)</p> <p>Axis titles:</p> <p>Categories (pies):</p> <p>Drop item here</p>
<Country> - Total	<Total(Quantity)>	<Total(Revenue)>	
Overall - Total	<Total(Quantity)>	<Total(Revenue)>	

# Report 1: Results (cont'd)

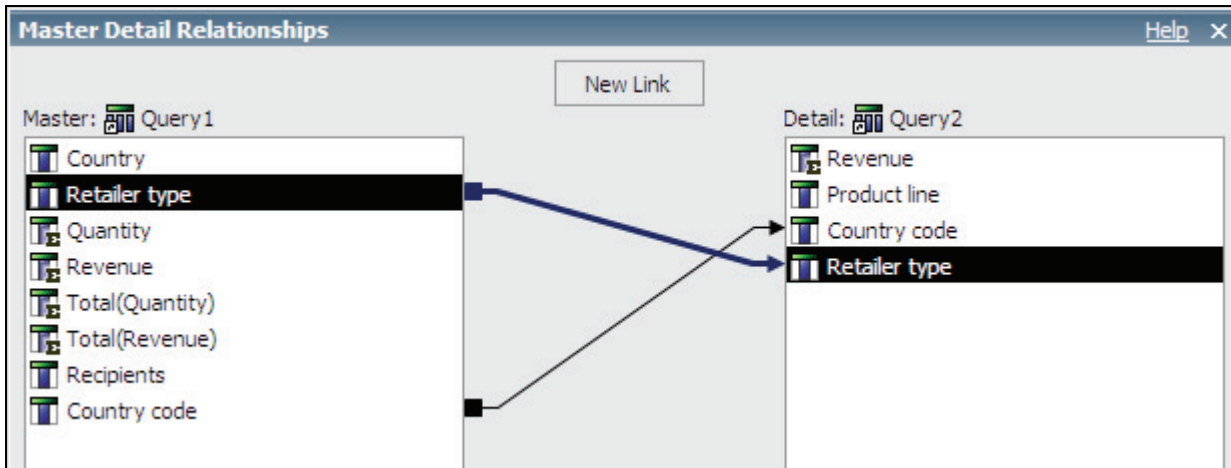
After adding the Recipients item to Query1, Query1 appears as shown below:

Data Items	Detail Filters
<div>Country</div> <div>Retailer type</div> <div>Quantity</div> <div>Revenue</div> <div>Total(Quantity)</div> <div>Total(Revenue)</div> <div>Recipients</div> <div><b>Country code</b></div>	<div>[Sales (query)].[Time].[Year]=2006</div>

After adding the Recipients item to Query2, Query2 appears as shown below:

Data Items	Detail Filters
<div>Revenue</div> <div>Product line</div> <div><b>Country code</b></div> <div>Retailer type</div>	<div>[Sales (query)].[Time].[Year]=2006</div>

When you create the master-detail relationship between the two queries, the link appears as shown below:

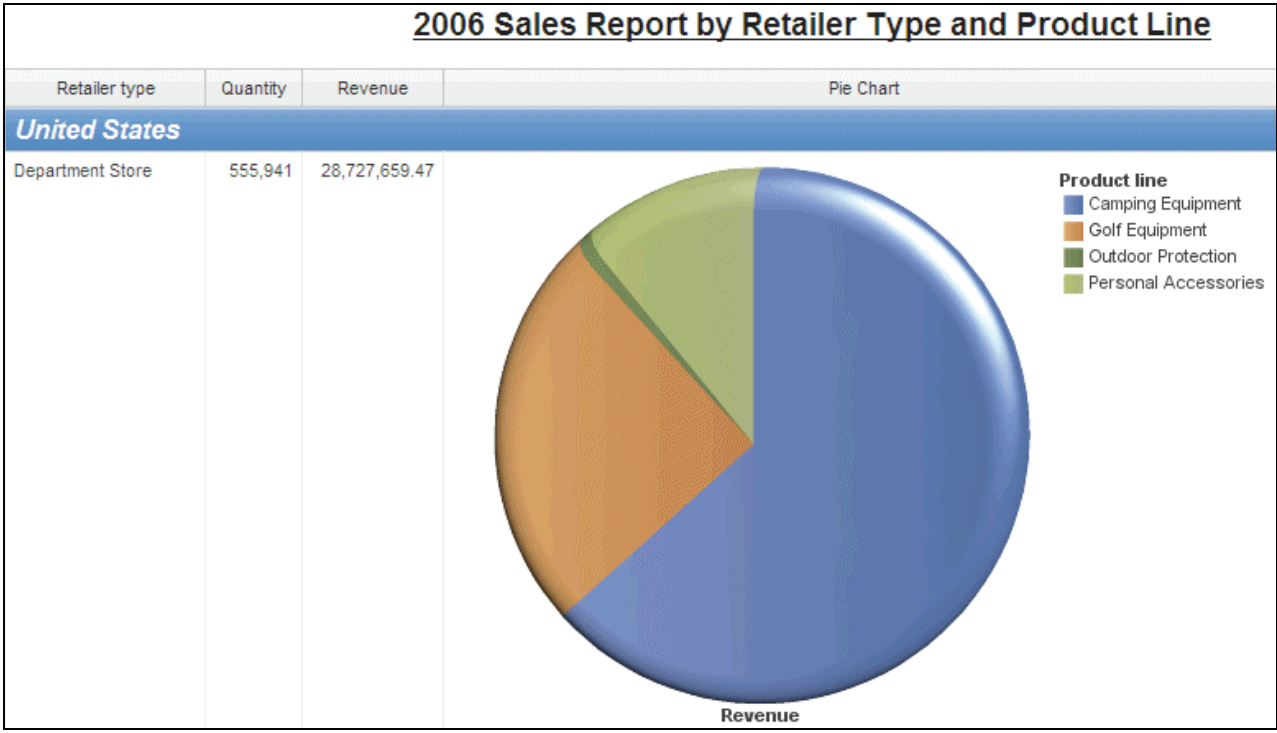


The burst options for the report appear as shown below:

The screenshot shows the 'Burst Options' dialog box. The 'Make report available for bursting' checkbox is checked. The 'Burst Groups' section on the left has 'Query1' selected in the 'Query:' dropdown, 'Country' in the 'Label:' dropdown, and 'Country' in the 'Groups:' list. The 'Burst Recipient' section on the right has 'Query1' selected in the 'Query:' dropdown, 'Recipients' in the 'Data Item:' dropdown, and 'Directory entries' in the 'Type:' dropdown. The 'Master detail relationships:' field is empty with a button to its right. 'OK' and 'Cancel' buttons are at the bottom right.

# Report 1: Results (cont'd)

When you log on as Bart Scott and view the Report1 report, the report appears as shown below:



## Report 2: Create a Report Letting Users Choose Top and Bottom 'N' Product Types

Marketing wants to know how the company's product types are performing based on gross profit. You have been asked to create a report that shows the top-performing and bottom-performing product types. At runtime, the managers want to be able to select the number of top-performing product types and the number of bottom-performing product types that will appear in the report.

To accomplish this:

- Create a list report using the GO Data Warehouse (query) package, Sales and Marketing (query) folder, Sales (query) namespace, that includes Product line, Product type, and Gross profit.
- Add a calculated column called Rank1 (Label: Rank) that ranks the gross profit generated by each product type.
- Add a table with one column and two rows, move the existing list report to the top cell, and then add a new list to the bottom cell.
- Add Product line, Product type, and Gross profit to the bottom list.
- Add a calculated data item called NegGP to the query used to create the second list. This data item multiplies the gross profit generated by each product type by negative one.
- Add a calculated column called Rank2 (Label: Rank) to the bottom list that ranks the values in the NegGP column.

- Filter the top list to only show product types whose gross profit rank is less than or equal to the rank number provided by the user, and then do the same for the bottom list.
- Add a dynamic title that changes depending on the value entered using the prompt. The title appears as follows: <prompt value displayed here> Top-performing and Bottom-performing Product Types.
- Format the entire title so all the text looks the same.
- Add text before the top list and before the bottom list describing their contents. Make this text dynamic so that it reflects the number of products users select using the prompt.
- Make all explanatory text above the list reports bold.
- Create space between the two lists by adding 20 pixels of padding to the top of the cell holding the bottom list report.
- Sort the Rank columns in both lists in ascending order.
- Create a prompt page that lets users provide the number of top and bottom product types to view. Include instructions above the prompt asking for the number of top and bottom product types to view.
- Run the report and enter 5 as the prompt value.

For more detailed information outlined as tasks, see the Task Table on the next page.

For the final results, see the Results section that follows the Task Table.



## Report 2: Task Table

**Task 1: Create a list report that ranks product types by how much gross profit they generate.**

Where to Work	Hints
GO Data Warehouse package, Sales and Marketing (query) folder, Sales (query) namespace	Add: <ul style="list-style-type: none"> <li>• [Sales (query)].[Products].[Product line]</li> <li>• [Sales (query)].[Products].[Product type]</li> <li>• [Sales (query)].[Sales fact].[Gross profit].</li> </ul>
Toolbox	<ul style="list-style-type: none"> <li>• Add a calculated column called Rank1: rank([Gross profit]), Label: Rank</li> </ul>

**Task 2: Add a table and a second list for bottom-performing product types.**

Where to Work	Hints
Toolbox/Work area	<ul style="list-style-type: none"> <li>• Add a 1-column, 2-row table.</li> <li>• Add the list to the top cell.</li> <li>• Add a second list to the bottom cell.</li> </ul>
Source tab	<ul style="list-style-type: none"> <li>• Add Product line, Product type, and Gross profit to the bottom list.</li> </ul>
Query Explorer/Query2	<ul style="list-style-type: none"> <li>• Add a calculated data item to Query2 called NegGP: [Gross profit] * -1</li> </ul>
Page1	<ul style="list-style-type: none"> <li>• Add a calculated column to the bottom list called Rank2: rank([NegGP]), Label: Rank.</li> </ul>

### Task 3: Filter both lists so users can choose the number of top-performing and bottom-performing product types to view.

Where to Work	Hints
Toolbar	<ul style="list-style-type: none"> <li>• Add a detail filter to the top list, [Rank1]&lt;=?RankNumber?, after auto aggregation.</li> <li>• Add a detail filter to the bottom list: [Rank2]&lt;=?RankNumber?, after auto aggregation</li> </ul>

### Task 4: Add an explanatory report title.

Where to Work	Hints
Page1	<ul style="list-style-type: none"> <li>• Add the following text to the report title: Top-Performing and Bottom-Performing Product Types (Add a space in front of the first word in the title.)</li> </ul>
Toolbox	<ul style="list-style-type: none"> <li>• Add a layout calculation to the beginning of the report title text. Use the RankNumber parameter display as the Report Expression.</li> </ul>
Properties pane	<ul style="list-style-type: none"> <li>• Format the layout calculation text using Pickup and Apply Style toolbar buttons, and then left justify.</li> </ul>

<b>Task 5: Format the report and add explanatory text above the reports.</b>	
<b>Where to Work</b>	<b>Hints</b>
Page1/Text item	<ul style="list-style-type: none"> <li>• Add the following above the top list report: Top-performing Product Types (Add a space before the first word.)</li> </ul>
Toolbox	<ul style="list-style-type: none"> <li>• Drag a layout calculation before the text. Use the RankNumber parameter display as the Report Expression for the layout calculation.</li> <li>• Add the following text above the bottom list report: Bottom-performing Product Types (Add a space before the first word.)</li> <li>• Drag a layout calculation before the text. Use the RankNumber parameter display as the Report Expression for the layout calculation.</li> <li>• Select the text items and layout calculations above each list and make the font bold.</li> </ul>
Properties pane	<ul style="list-style-type: none"> <li>• Add padding (20 px) at top of the bottom table cell.</li> </ul>
Toolbar	<ul style="list-style-type: none"> <li>• Sort the Rank columns in each of the lists in ascending order</li> </ul>

<b>Task 6: Add a prompt page.</b>	
<b>Where to Work</b>	<b>Hints</b>
Page Explorer, Prompt Pages, Prompt Page1, Toolbox tab	<ul style="list-style-type: none"> <li>• Add 1-column, 2-row table.</li> <li>• Add a text box prompt to the bottom cell using the RankNumber parameter.</li> <li>• Add the following text to the top cell: "Select the number of top-performing and bottom-performing product types to view".</li> </ul>
Toolbar	<ul style="list-style-type: none"> <li>• Make the text bold.</li> <li>• Run the report; enter 5 as the prompt value.</li> </ul>

## Report 2: Results

Query1 appears as shown below:

Data Items	Detail Filters
Product line	[Rank1] <=?RankNumber?
Product type	
Gross profit	
Rank1	

Query2 appears as shown below:

Data Items	Detail Filters
Gross profit	[Rank2] <=?RankNumber?
Product line	
Product type	
NegGP	
Rank2	

The work area of Page1 appears as shown below:

<%ParamDisplay...%> Top-Performing and Bottom-Performing Product Types			
<%ParamDisplay...%> Top-performing Product Types			
Product line	Product type	Gross profit	Rank
<Product line>	<Product type>	<Gross profit>	<Rank1>
<Product line>	<Product type>	<Gross profit>	<Rank1>
<Product line>	<Product type>	<Gross profit>	<Rank1>
<%ParamDisplay...%> Bottom-performing Product Types			
Product line	Product type	Gross profit	Rank2
<Product line>	<Product type>	<Gross profit>	<Rank2>
<Product line>	<Product type>	<Gross profit>	<Rank2>
<Product line>	<Product type>	<Gross profit>	<Rank2>

## Report 2: Results (cont'd)

The work area for PromptPage1 appears as shown below:

**Double click to edit text**

---

Select the number of top-performing and bottom-performing product types to view

When you run the report and enter 5 as the prompt value, the result appears as shown below:

<b>5 Top-Performing and Bottom-Performing Product Types</b>			
<b>5 Top-performing Product Types</b>			
Product line	Product type	Gross profit	Rank
Personal Accessories	Eyewear	352,244,629.99	1
Personal Accessories	Watches	235,338,891.48	2
Camping Equipment	Tents	167,313,407.49	3
Golf Equipment	Woods	150,710,544.01	4
Camping Equipment	Packs	138,647,509.69	5
<b>5 Bottom-performing Product Types</b>			
Product line	Product type	Gross profit	Rank
Outdoor Protection	First Aid	6,000,796.2	1
Outdoor Protection	Sunscreen	15,791,427.64	2
Outdoor Protection	Insect Repellents	24,191,058.94	3
Mountaineering Equipment	Safety	30,985,935.3	4
Golf Equipment	Golf Accessories	31,586,735.03	5

## Report 3: Let Users Choose a Chart Type to Display with a Crosstab

For an upcoming presentation, management has requested a report comparing the volume of sales of each product line in each sales territory. The report must show data in crosstab format and must show the same data in a graphical display. Depending on their preferences, users should be able to view the data graphically in a column, line, or gauge chart.

To accomplish this:

- Create a column chart, using the GO Data Warehouse (query) package, Sales and Marketing (query) folder, Sales (query) namespace, that displays the quantity of each product line sold in each sales territory.
- Add a Cluster line with markers chart to the report using the same query, and add the same items as you did for the column chart.
- Add a gauge chart to the report using the same query, and add the same items you did for the column chart.
- Hide the horizontal axis titles on all of the charts.
- Add a prompt page with a value prompt and create a new parameter for the prompt called "DisplayOptions".
- Add three static choices for the prompt that let users choose to view a column chart, line chart, or gauge chart, and add explanatory text to let users know how to use the prompt.
- Add a conditional block object to the report page below the three charts. Use a string variable to conditionally format this block to display the chart type users select from the prompt at run time.
- Add a crosstab to the bottom of the report and populate it using the same query and data that you added to the charts.
- Run the report for each of the prompt options.

For more detailed information outlined as tasks, see the Task Table on the next page.

For the final results, see the Results section that follows the Task Table.

## Report 3: Task Table

Task 1: Create a chart report containing three display types.	
Where to Work	Hints
Page Explorer, GO Data Warehouse package, Sales and Marketing (query) folder, Sales (query) namespace	<ul style="list-style-type: none"> <li>• Create a Column chart.</li> <li>• Add: [Sales (query)].[Sales fact].[Quantity] to Default measure drop zone [Sales (query)].[Retailers]. [Region] to Category x-axis drop zone [Sales (query)].[Products].[Product line] to Series drop zone.</li> </ul>
Toolbox	<ul style="list-style-type: none"> <li>• Add a Clustered Line with Markers chart using the same query and data.</li> </ul>
Source tab	<ul style="list-style-type: none"> <li>• Add a Gauge Chart With Bevelled Border using the same query and data.</li> </ul>
Properties pane, Default Title Property	<ul style="list-style-type: none"> <li>• Hide the horizontal axis title on the column, line, and gauge charts.</li> </ul>



<b>Task 2: Add a prompt and static choices.</b>	
<b>Where to Work</b>	<b>Hints</b>
Page Explorer, Prompt pages, Prompt Page 1, Toolbox	<ul style="list-style-type: none"> <li>• Value prompt: Create a new parameter called DisplayOptions.</li> </ul>
Properties pane, Static Choices	<ul style="list-style-type: none"> <li>• Static Choices:             <ul style="list-style-type: none"> <li>• Column=Column</li> <li>• Line=Line</li> <li>• Gauge=Gauge</li> </ul> </li> </ul>
Toolbox	<ul style="list-style-type: none"> <li>• Add 1-column, 2-row table.</li> <li>• Add text item to top cell: "Please select a chart type"</li> <li>• Make this text bold.</li> <li>• Drag the value prompt to the bottom cell.</li> </ul>

### Task 3: Add a conditional block and apply conditional formatting to this conditional block

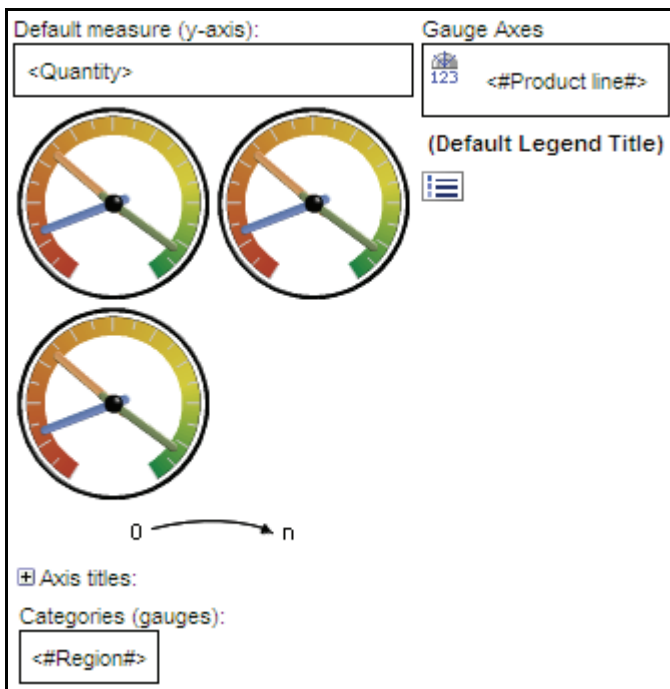
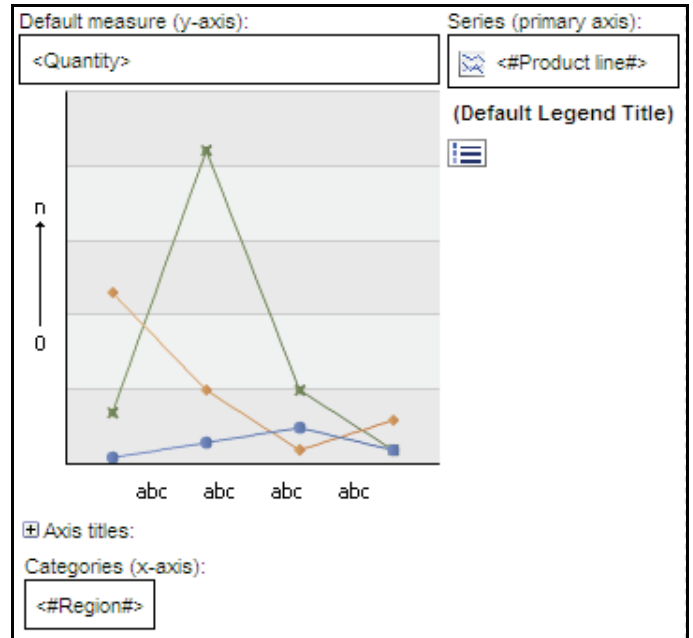
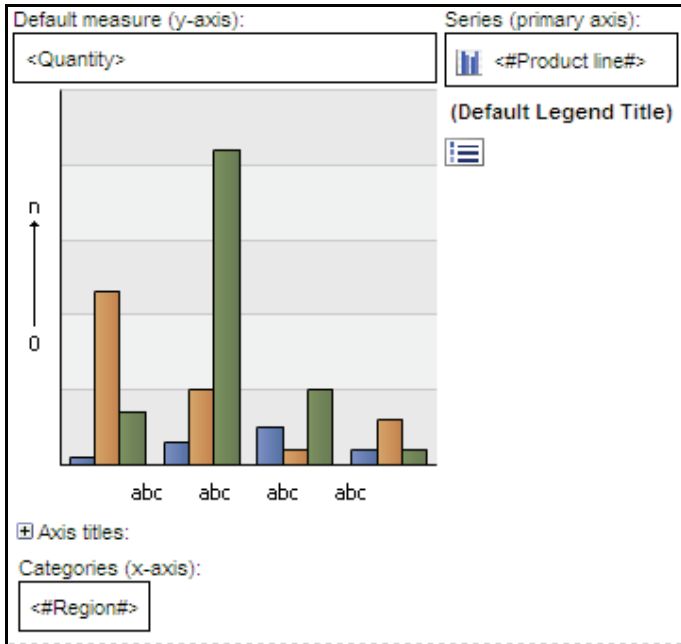
Where to Work	Hints
Page1, Toolbox	<ul style="list-style-type: none"> <li>• Drag a Conditional Blocks object onto the report.</li> <li>• Conditional Blocks: Add a block variable (string) called Charts.</li> <li>• Add Values: Column and Line</li> <li>• Expression: ParamDisplayValue('DisplayOptions')</li> </ul>
Properties pane	<ul style="list-style-type: none"> <li>• Select the Conditional Blocks object, set Current Block property to Column, and drag the Column chart into the block.</li> <li>• Repeat last step for the Line option and the line chart.</li> <li>• Set the Current Block property to Other and drag the gauge chart into the block.</li> </ul>

### Task 4: Add a crosstab to the report, and then run it.

Where to Work	Hints
Toolbox\Work area	<ul style="list-style-type: none"> <li>• Add a Crosstab object below the Conditional block.</li> </ul>
Data Items tab	<ul style="list-style-type: none"> <li>• Add data from Query1 (Region on Rows, Product line on Columns, Quantity as Measures).</li> </ul>
Toolbar	<ul style="list-style-type: none"> <li>• Run the report, choose Column.</li> <li>• Rerun choosing Line, then rerun choosing Gauge</li> </ul>

## Report 3: Results

When you add all three charts to the report page, Page1 appears as shown below (each chart is shown individually, but in the page they appear side-by-side):



# Report 3: Results (cont'd)

The static choices for the DisplayOptions prompt appear as shown below:

Static Choices

Help

Conditional display values

Variable:

(None)

Value:

(None)

Use	Display
Column	Column
Line	Line
Gauge	Gauge

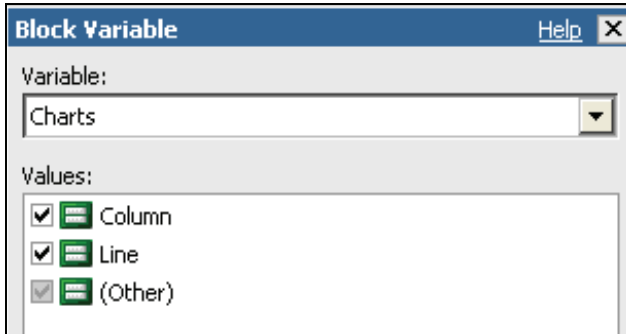
The work area of Prompt Page1 appears as shown below:

Double click to edit text

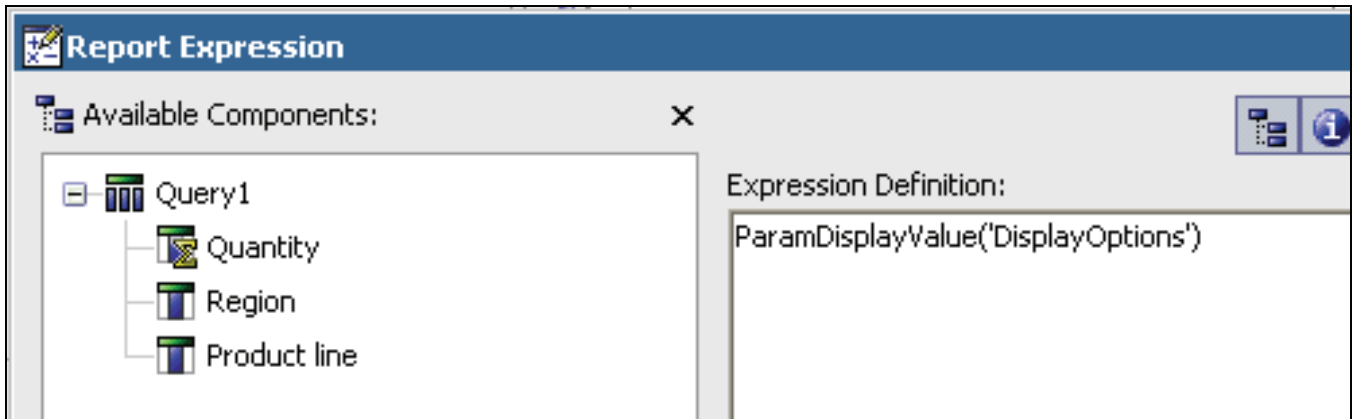
Please select a chart type

## Report 3: Results (cont'd)

The two values you add to the Charts string variable for the conditional block appear as shown below:

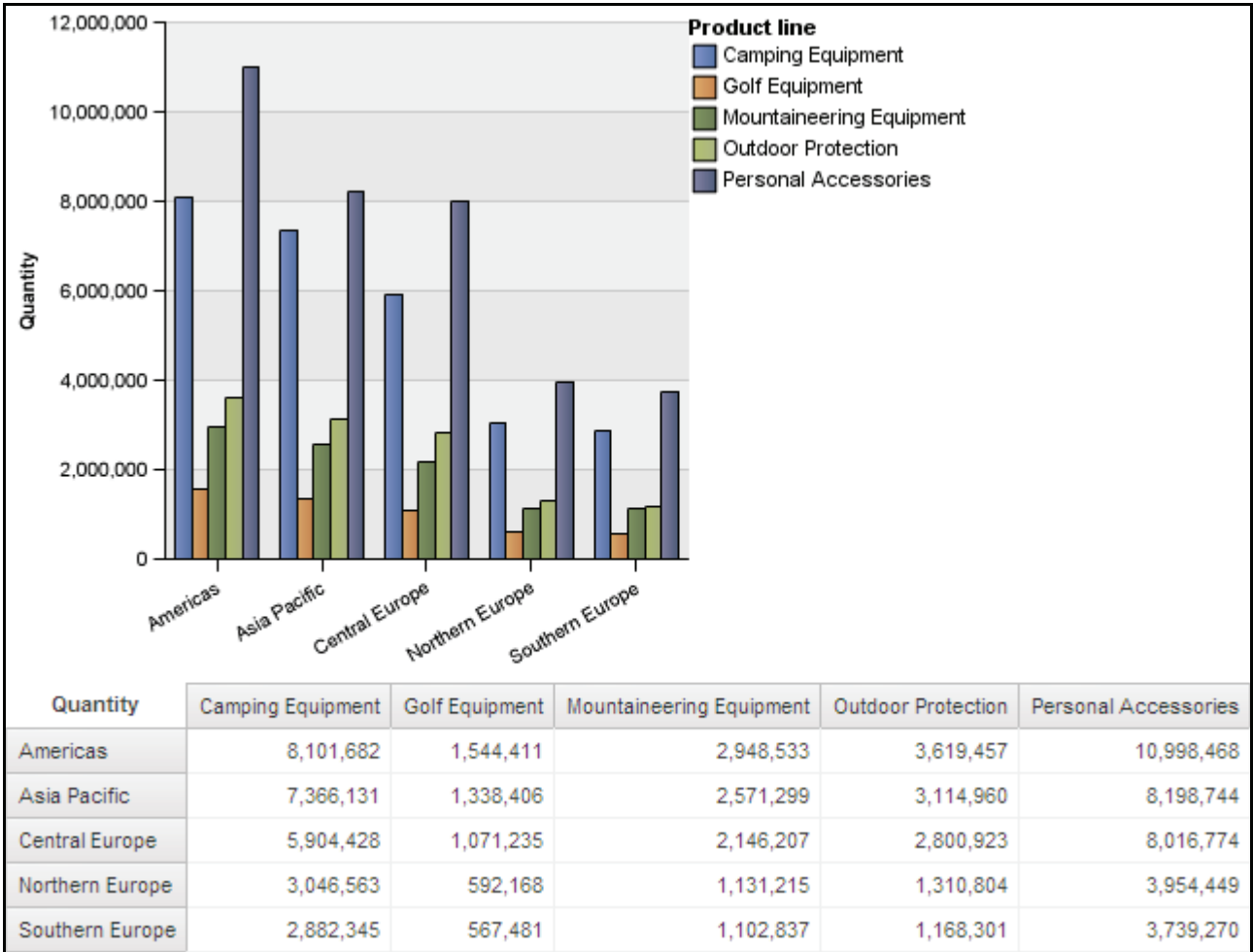


The Expression Definition for the Charts variable appears as shown below:



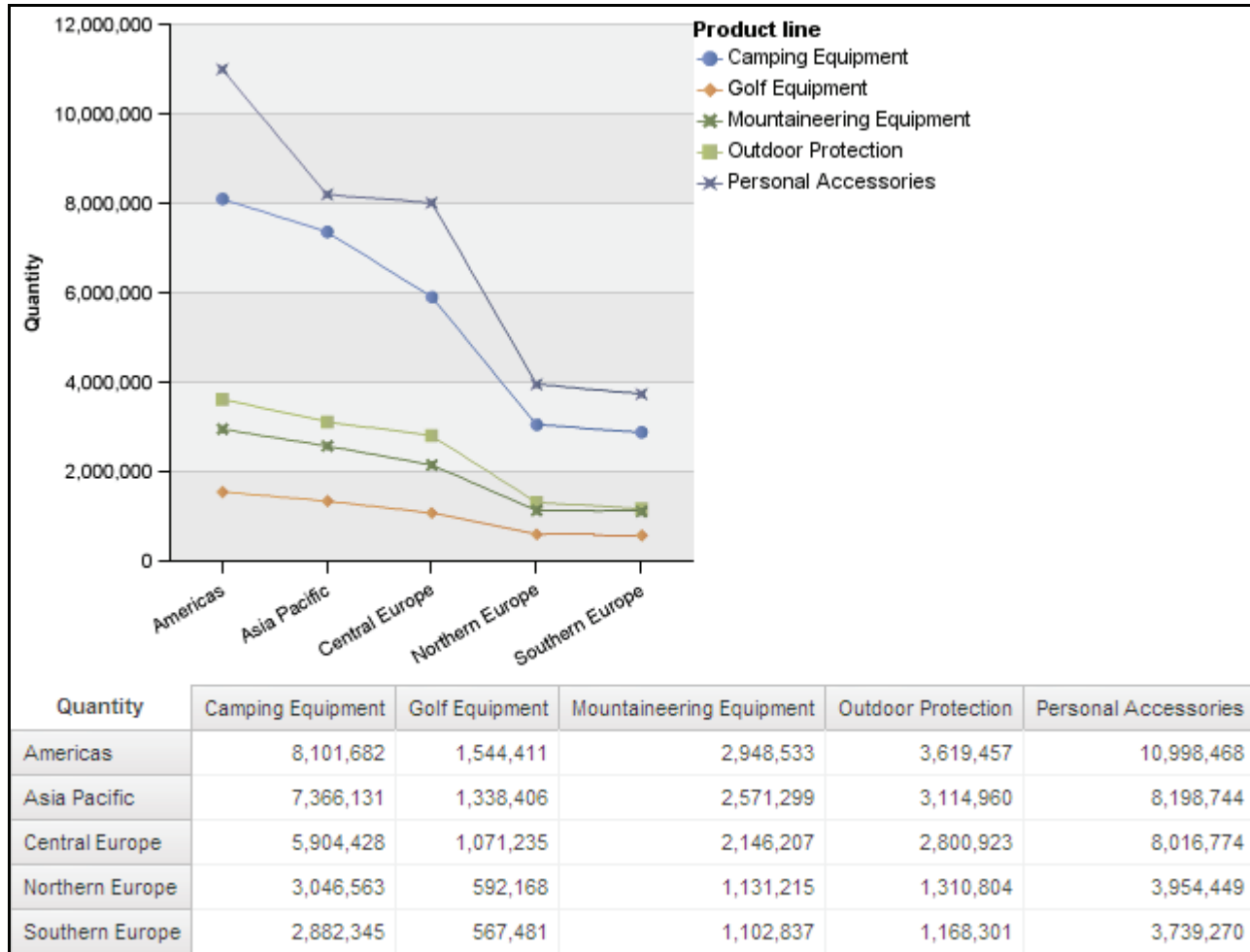
Report 3: Results (cont'd)

When you run the report and select the Column option, the report appears as shown below:



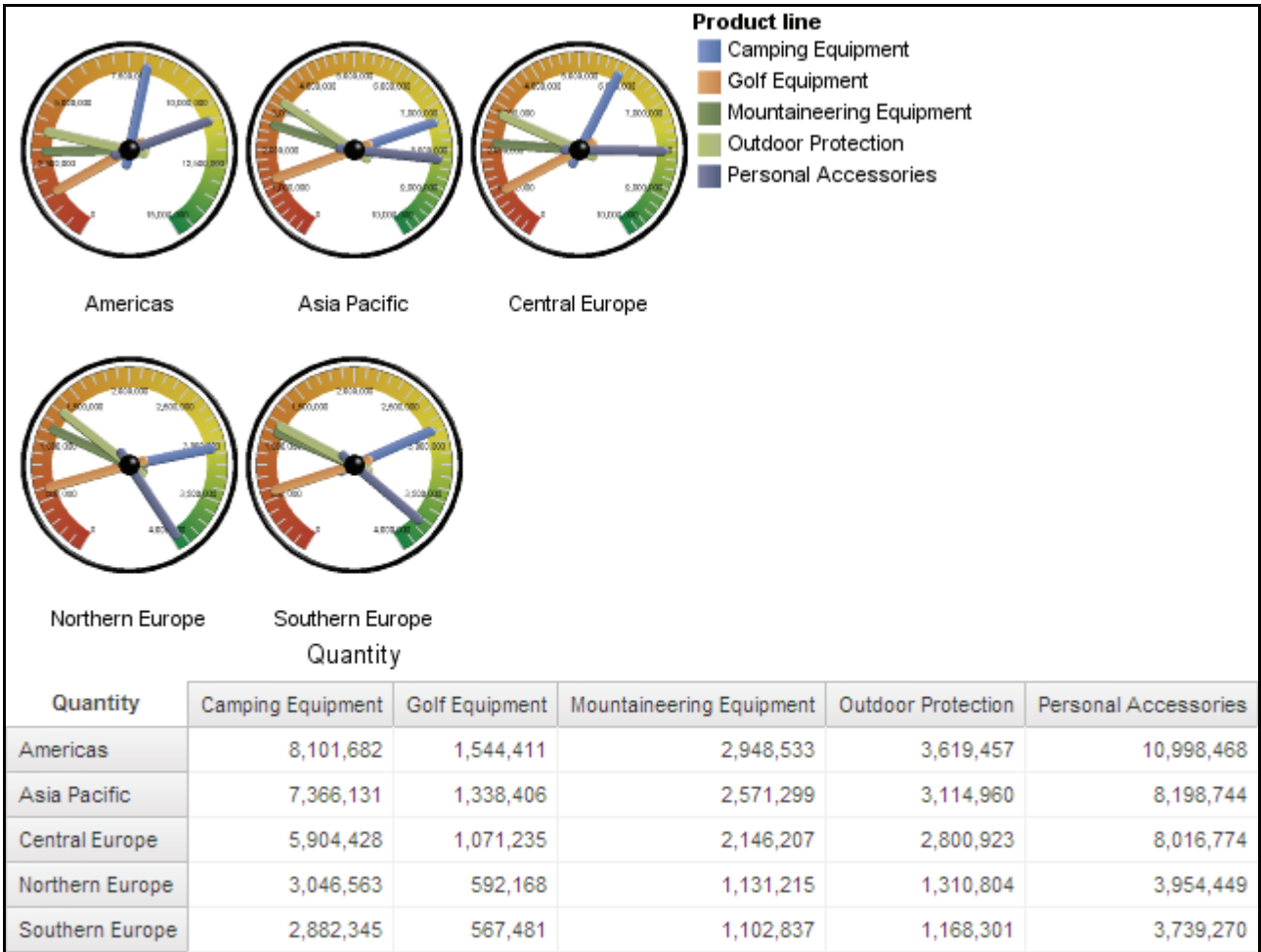
## Report 3: Results (cont'd)

When you run the report and select the Line option, the report appears as shown below:



# Report 3: Results (cont'd)

When you run the report and select the Gauge option, the report appears as shown below:





## Report 4: Create a Sales Report Omitting Specific Data

The product manager for knives wants to evaluate sales of all knives in December of 2006. The company recently discovered that there was a manufacturing defect in Bear Edge knives sold in the United States in December of 2006. They are planning to issue a recall of these products. Bear Edge knives sold in other regions were not defective and will not be recalled. To gain a realistic view of sales, the manager wants the report to include revenue in all countries from knives sold in December of 2006. However, the report should not include revenue from Bear Edge knives sold in the United States during this time. The manager should be able to sort the report using any column in the report to quickly find specific data.

To accomplish this:

- Create a new list report using the GO Data Warehouse (query) package, Sales and Marketing (query) folder, Sales (query) namespace.
- Specify that you want to combine data retrieved by two queries into one result set but exclude data that is common to the combined queries.
- Add Date, Retailer country, Product, and Revenue to Query2.
- Filter Query2 to include only data for the knives sold in December of 2006.
- Add Date, Retailer country, Product, and Revenue to Query3.
- Filter Query3 to include only data for sales of the Bear Edge product in the United States in December of 2006.
- Add the required data to Query1, add this data to the list, and then run the report.
- Add a data item to Query1 that will sort whichever column the user selects in the prompt in ascending order.

- Add a block object containing a value prompt above the list report. For this prompt, use the parameter you created earlier.
- Create static choices for the value prompt to let users choose which column to use to sort report data.
- Specify that any selections users make using the prompt should be submitted automatically and hide prompt adornments.
- Specify that by default, the report should be sorted by Order date.
- Add a report title describing report data.
- Add text explaining how to use the prompt.
- Run the report, and then sort the report using the Product name column.

For more detailed information outlined as tasks, see the Task Table on the next page.

For the final results, see the Results section that follows the Task Table

## Report 4: Task Table

### Task 1: Create a new list report and use an Except set operation to merge result sets from two queries.

Where to Work	Hints
<p>GO Data Warehouse package, Sales and Marketing (query) folder, Sales (query) namespace</p> <p>Query Explorer, Queries Source tab and Toolbox tab</p>	<ul style="list-style-type: none"> <li>• Drag an Except object to the work area to the right of Query1.</li> <li>• Drag a Query object to each of the two drop zones.</li> <li>• Add the following to Query2:             <ul style="list-style-type: none"> <li>• Time → Date</li> <li>• Retailers → Retailer country</li> <li>• Products → Product</li> <li>• Sales fact → Revenue</li> </ul> </li> <li>• Add a filter to Query2: [Date]between 2006-12-01 and 2006-12-31</li> <li>• Add a filter to Query2: [Sales (query)].[Products]. [Product type]='Knives'</li> <li>• Add the same query items as Query 2 to Query3 (Date, Retailer country, Product, and Revenue).</li> <li>• Add a filter to Query3: [Date]between 2006-12-01 and 2006-12-31</li> <li>• Add a filter to Query3: [Retailer country]='United States'</li> <li>• Add a filter to Query3: [Product]='Bear Edge'</li> </ul>

<b>Task 2: Add projected data items to the query and the layout.</b>	
<b>Where to Work</b>	<b>Hints</b>
Query Explorer, Query1	<ul style="list-style-type: none"> <li>• Add all data items to Query1.</li> </ul>
Page1, Data Items tab	<ul style="list-style-type: none"> <li>• Add all data items from Query1 to the list.</li> </ul>
Toolbar	<ul style="list-style-type: none"> <li>• Run the report.</li> </ul>
<b>Task 3: Add a calculated item that lets users choose how to sort data, and then add a prompt using the parameter created by this calculated item.</b>	
<b>Where to Work</b>	<b>Hints</b>
Query Explorer, Query1, Toolbox tab	<ul style="list-style-type: none"> <li>• Drag a Data Item to the Data Items pane.</li> <li>• Create a calculated data item that will sort the column users select from a Sort parameter in ascending order.</li> </ul>
Properties pane, Pre-Sort property	<ul style="list-style-type: none"> <li>• Name the data item Sort Key.</li> <li>• Set Pre-Sort to Sort ascending.</li> </ul>
Page1, Properties pane	<ul style="list-style-type: none"> <li>• Make the Sort Key a property of the List object.</li> </ul>
Toolbox	<ul style="list-style-type: none"> <li>• Add a Block object above the list report.</li> <li>• Add a value prompt that uses the Sort parameter to the block.</li> </ul>
Properties pane, Static Choices	<ul style="list-style-type: none"> <li>• Create static choices for the prompt using the options provided for the Sort parameter in the Sort Key data item expression.</li> <li>• Specify the following properties for the value prompt: Auto-Submit: Yes, Hide Adornments: Yes.</li> <li>• Add a default selection of 'D' for the prompt.</li> </ul>

<b>Task 4: Format and run the report.</b>	
<b>Where to Work</b>	<b>Hints</b>
Page1, Toolbox	<ul style="list-style-type: none"> <li>• Add a 1-column, 2-row table to the report header.</li> <li>• Drag the report title into top cell, change text to read "December 2006 Knife Sales"</li> </ul>
Toolbar	<ul style="list-style-type: none"> <li>• Format text to be 12 pt, Bold, and Aligned Middle Center.</li> </ul>
Toolbox	<ul style="list-style-type: none"> <li>• Drag a Text Item object into bottom cell and type the following: "Not Including Bear Edge Sales in the United States", and Align it Middle Center</li> <li>• Drag a Block above the block containing the value prompt.</li> <li>• Drag a Text Item into the Block reading "Please choose a column to sort by:"</li> </ul>
Toolbar	<ul style="list-style-type: none"> <li>• Run the report.</li> <li>• Sort the report data by Product name.</li> </ul>

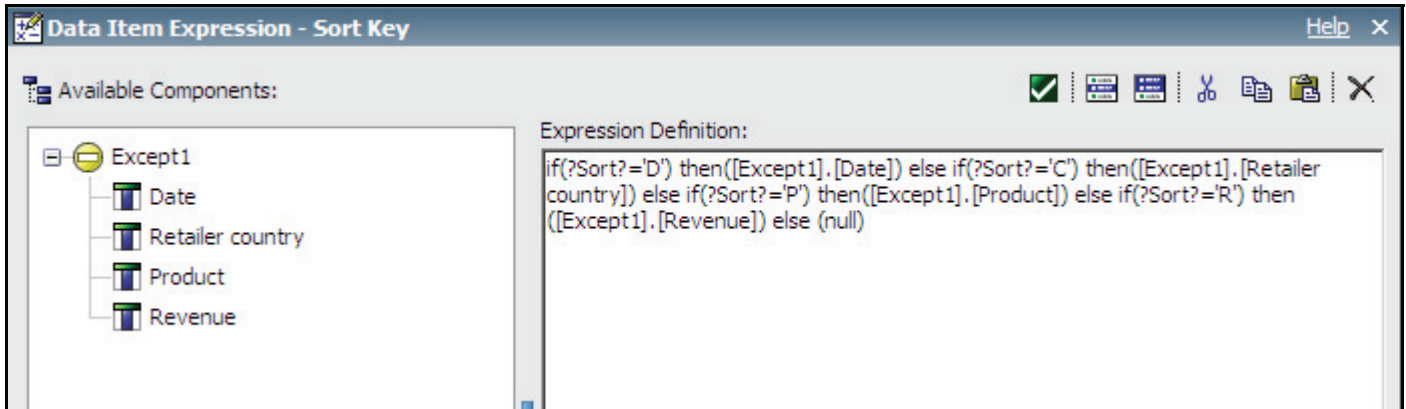
## Report 4: Results

The first time you run the report (before adding any parameters), the result appears as shown below:

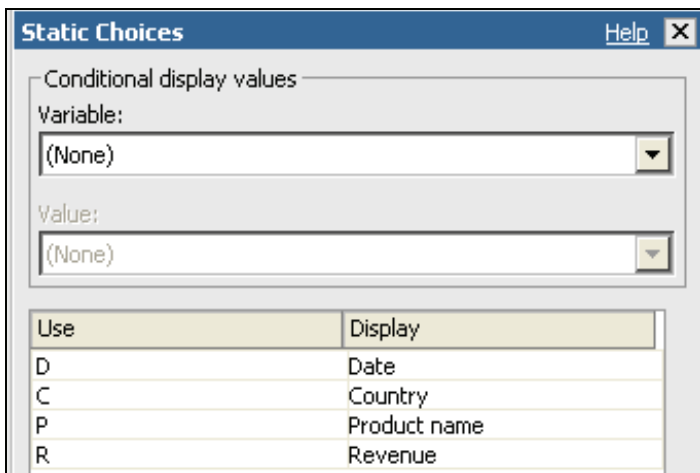
Date	Retailer country	Product	Revenue
Dec 11, 2006	Brazil	Max Gizmo	6,439.5
Dec 11, 2006	Brazil	Pocket Gizmo	915.9
Dec 11, 2006	Canada	Bear Edge	12,536.7
Dec 11, 2006	Canada	Double Edge	13,363.92
Dec 11, 2006	Canada	Edge Extreme	37,410.59
Dec 11, 2006	Canada	Pocket Gizmo	9,262.2
Dec 11, 2006	Canada	Single Edge	50,016.8
Dec 11, 2006	Denmark	Bear Edge	14,295.6
Dec 11, 2006	Denmark	Double Edge	12,281.43
Dec 11, 2006	Denmark	Edge Extreme	35,022.68
Dec 11, 2006	Denmark	Single Edge	42,842.06
Dec 11, 2006	Finland	Max Gizmo	1,498.5
Dec 11, 2006	Finland	Pocket Gizmo	1,689.9
Dec 11, 2006	France	Bear Edge	8,656.78
Dec 11, 2006	France	Double Edge	9,198.84
Dec 11, 2006	France	Edge Extreme	25,584.75
Dec 11, 2006	France	Max Gizmo	2,632.5
Dec 11, 2006	France	Single Edge	34,089.12
Dec 11, 2006	Japan	Max Gizmo	19,607.8
Dec 11, 2006	Korea	Bear Edge	14,414.73

## Report 4: Results (cont'd)

The expression for the Sort Key data item appears as shown below:



When you create static choices for the value prompt, the choices appear as shown below:



## Report 4: Results (cont'd)

When you sort the report by Product name, the report appears as shown below:

December 2006 Knife Sales			
Not Including Bear Edge Sales in the United States			
Please choose a column to sort by:			
Product name ▼			
Date	Retailer country	Product name	Revenue
Dec 11, 2006	Canada	Bear Edge	12,536.7
Dec 11, 2006	Denmark	Bear Edge	14,295.6
Dec 11, 2006	France	Bear Edge	8,656.78
Dec 11, 2006	Korea	Bear Edge	14,414.73
Dec 11, 2006	Switzerland	Bear Edge	8,061.13
Dec 11, 2006	United Kingdom	Bear Edge	18,822.54
Dec 12, 2006	Canada	Bear Edge	9,903.6
Dec 12, 2006	Germany	Bear Edge	9,967.21
Dec 12, 2006	Netherlands	Bear Edge	16,161.97
Dec 13, 2006	Brazil	Bear Edge	11,237.93
Dec 13, 2006	Japan	Bear Edge	11,039.38
Dec 14, 2006	Germany	Bear Edge	8,100.84
Dec 14, 2006	Spain	Bear Edge	14,732.41
Dec 15, 2006	Australia	Bear Edge	10,324.6
Dec 15, 2006	France	Bear Edge	6,988.96
Dec 15, 2006	Italy	Bear Edge	14,295.6
Dec 18, 2006	China	Bear Edge	19,021.09
Dec 18, 2006	Japan	Bear Edge	9,133.3
Dec 18, 2006	Singapore	Bear Edge	11,277.64
Dec 20, 2006	Belgium	Bear Edge	8,815.62





---

# Introduction to Event Studio

IBM Cognos BI



**Business Analytics**

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## Objectives

- At the end of this course, you should be able to:
  - examine the role of Event Studio in Performance Management
  - list the benefits of Event Studio
  - add tasks to an agent
  - run an agent

---

If you intend to teach this module, students should be familiar with:

- IBM Cognos Connection

Suggested modules to reference:

- Manage Content in IBM Cognos Connection

**INTERACTION - Star Sticker:** Star each objective as it is introduced.



## Examine Performance Management

- Good decisions are the building blocks of great business performance.
- Understand and improve your business based on:
  - How are we doing?
  - Why?
  - What should we be doing?
- IBM Cognos BI provides performance management through software, services, best-practices, and partners.



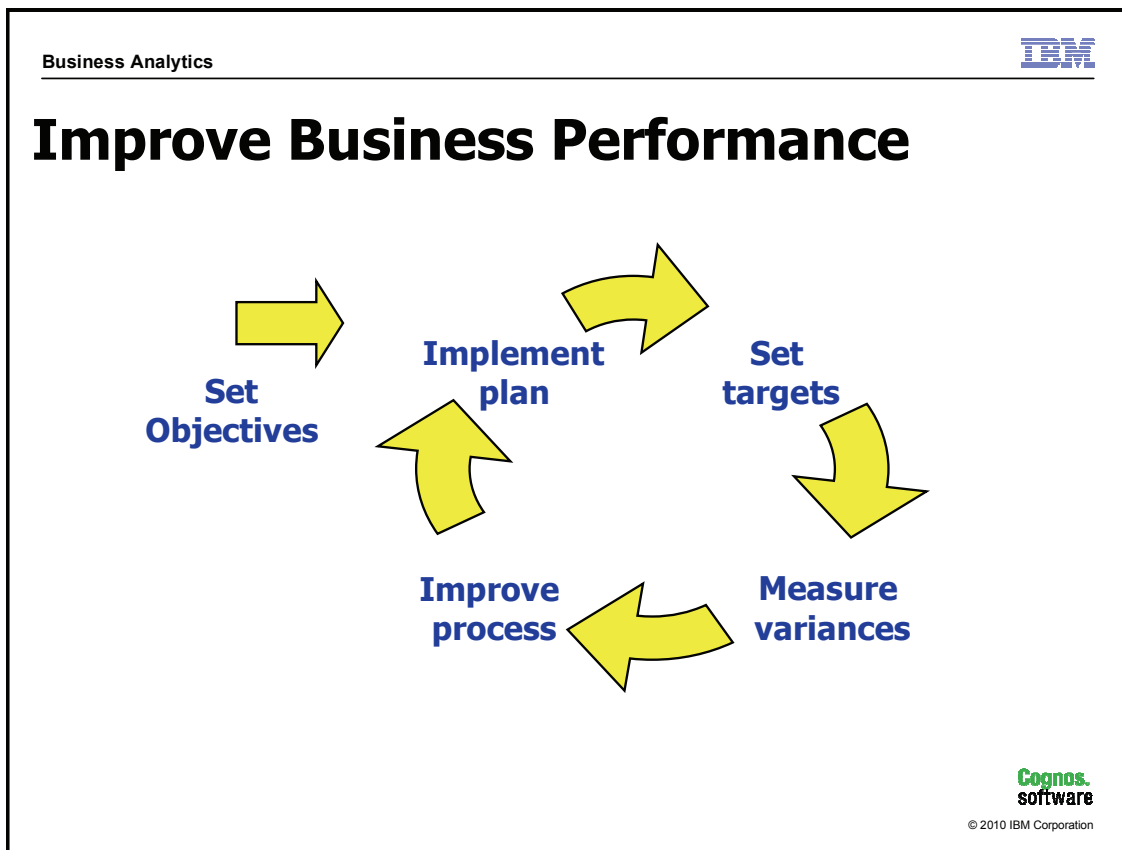
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Use IBM Cognos BI as an open, "enterprise-class" platform to answer the following:

- How are we doing? Measuring and monitoring performance with scorecards and dashboards tracks your key metrics.
- Why? Reporting and analysis let you see data, gain context, understand trends, and spot anomalies.
- What should we be doing? Planning, budgets, and forecasts let you set and share a reliable view of the future.

---

IBM Cognos BI consists of planning, business intelligence and consolidation, and financial reporting. It uses one underlying architecture and the components are all part of one solution.



Businesses can improve corporate performance by following a process that involves ongoing monitoring of business activities.

Business activity monitoring lets you monitor the business and its variances against the plan.

---

As a report author, it is important to understand what factors drive your business, in order to provide and receive the most relevant and accurate information.

Business event management tracks significant events that need attention.

Event Studio allows you to identify and manage exceptional issues in time to influence the outcome.

**INTERACTION - Toolbar Emoticons > Raise Hand:** Ask participants where, in this cycle, they think Event Studio Agents would fit.



## What is Event Studio?

- In Event Studio, you define conditions to detect and deliver critical business information to key stakeholders, allowing them to react to the event.

**Cognos.**  
software

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Event Studio is fully integrated into the IBM Cognos BI platform using the same scheduler, same user interface, and same data access mechanism as IBM Cognos BI.

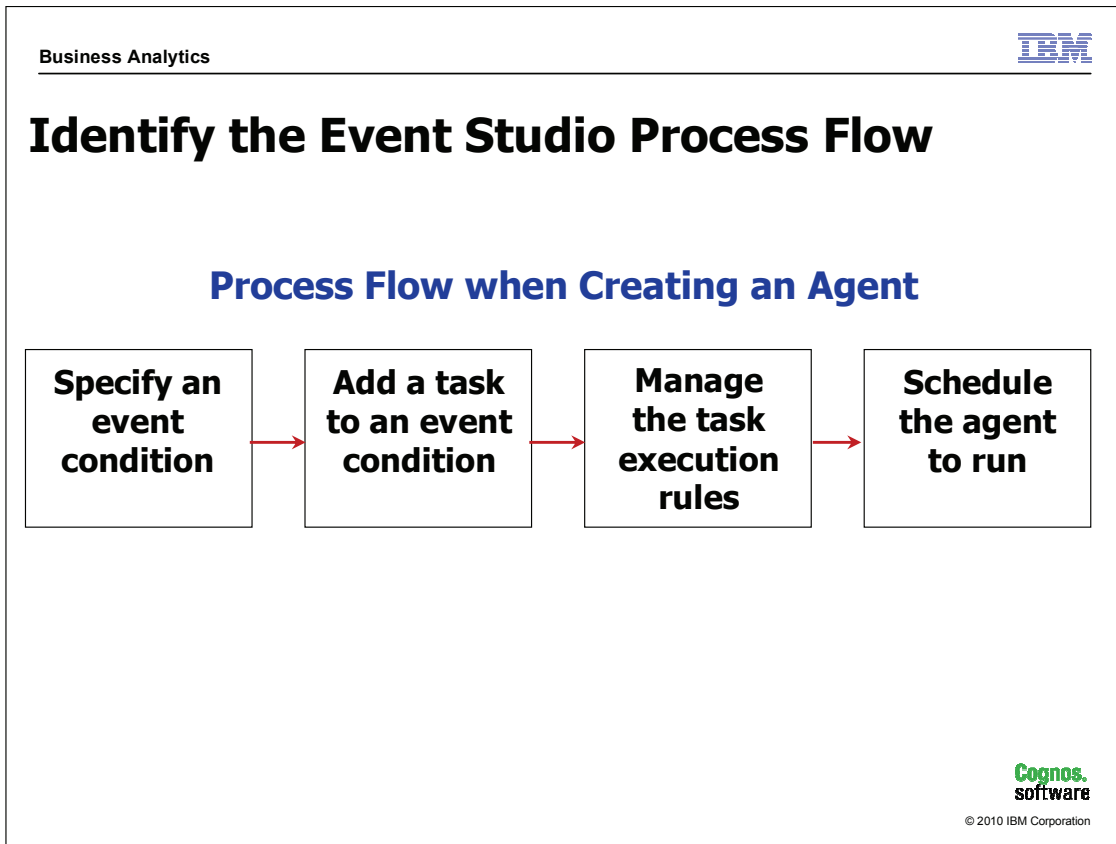
Event Studio lets users:

- keep track of individual events that they consider important
- automatically prioritize workloads
- know of good or bad events as soon as they occur
- avoid information overload

It is best to report against live data rather than static data (i.e. cubes) when working in Event Studio. This may impact your performance so try to keep your queries small and filtered.

Section 409 of the Sarbanes-Oxley Act requires that enterprises report material events affecting financial performance within 48 hours of their occurrence. With Event Studio, users are able to report on these material events.

**INTERACTION - Toolbar Emoticons > Raise Hand:** Ask participants if their companies currently use Event Studio or anything else that helps them automatically track and react to critical business information.



Event Studio uses agents to monitor data for instances of an event and perform tasks when events occur.

An agent contains the event condition and the associated tasks to perform. An agent can be scheduled to check for instances of the event.

---

When an agent runs, it checks for occurrences of the event. If it detects the event, the agent performs its tasks for events that meet the execution rules. An agent runs its tasks either all at the same time or in the order that you specify.

After you have run the agent once, you can view the list of current event instances by clicking More, and then clicking View most recent Event list.

## Workshop 1: Create the Top 5 Revenue Earners Report

You need to create the Top 5 Earners Report so that you will be able to link it to an Event studio task.

To accomplish this:

- Create a new List report in Report Studio.
- Create a detail filter and modify the Employee name expression.
- Add a row number to the Employee Name cell

For more detailed information outlined as tasks, see the Task Table on the next page.

For the final results, see the Workshop Results section that follows the Task Table.



## Workshop 1: Task Table

<b>Task 1: Open Report Studio and choose a report type.</b>	
<b>Where to Work</b>	<b>Hints</b>
Toolbar	<ul style="list-style-type: none"> <li>• New List (GO Data Warehouse (query))</li> </ul>
Source Tab	<ul style="list-style-type: none"> <li>• Employee name, Country, Date, Order number, and Revenue</li> </ul>
<b>Task 2: Create a detail filter and modify the Employee name expression.</b>	
<b>Where to Work</b>	<b>Hints</b>
Detail Filter	<ul style="list-style-type: none"> <li>• Total([Revenue] for [Order number]) &gt; 750000 and year([Date])=2006 and month([Date])=05</li> </ul>
Query 1	<ul style="list-style-type: none"> <li>• Modify Employee name expression: TopCount([Sales (query)].[Employee by region].[Employee name], 5, [Revenue])</li> </ul>
<b>Task 3: Add a row number to the Employee Name cell.</b>	
<b>Where to Work</b>	<b>Hints</b>
Toolbar	<ul style="list-style-type: none"> <li>• Unlock</li> </ul>
Toolbox Tab	<ul style="list-style-type: none"> <li>• Drag Row Number to Employee name column</li> </ul>
Toolbar	<ul style="list-style-type: none"> <li>• Lock</li> <li>• Run Report</li> <li>• Save Report</li> </ul>

## Workshop 1: Workshop Results

The results after Task 3, Step 5:

Employee name	Country	Date	Order number	Revenue
Row Number. <Employee name>	<Country>	<Date>	<Order number>	<Revenue>
Row Number. <Employee name>	<Country>	<Date>	<Order number>	<Revenue>
Row Number. <Employee name>	<Country>	<Date>	<Order number>	<Revenue>

The results after Task 3, Step 6:

Employee name	Country	Date	Order number	Revenue
1. Matias Wallgren	Finland	May 12, 2006	501124	965,848.44
2. He Teo	Korea	May 9, 2006	402471	903,007.98
3. Pascal Lanuit	Canada	May 18, 2006	103595	817,450.9
4. Jung-ho Choi	Korea	May 10, 2006	402427	805,379.46
5. Lucia Reyna	Mexico	May 12, 2006	103584	785,341.49

## Workshop 1: Step-by-Step Instructions

### Task 1. Open Report Studio and choose a report type.

1. Start your browser, in the address box, type **http://<servername:88>/ibmcognos**, and then press **Enter**.
2. On the **Log on** screen, in the **User ID** box, type **admin**, in the **Password** box, type **Education1!** and then click **OK**.
3. On the **Welcome** page, click **Author advanced reports**, and then on the **Select a package** page, click **GO Data Warehouse (query)**.
4. Click **Create new**, click **List**, and then click **OK**.
5. In the **Insertable Objects** pane, on the **Source** tab, expand the **Sales and Marketing (query)** folder, and then expand the **Sales (query)** namespace.
6. Expand the **Employee by region** query subject, Ctrl+click **Employee name** and **Country** and drag them to the report.
7. Expand the **Time** query subject, and then double-click **Date** to add it to the report.
8. Expand the **Sales order** query subject, and then double-click **Order number** to add it to the report.
9. Expand the **Sales fact** query subject, and then double-click **Revenue** to add it to the report.

## **Task 2. Create a detail filter and modify the Employee name expression.**

1. On the toolbar click **Filters**, **Edit Filters**, and then click **Add**.
2. Select **Advanced**, and then click **OK**.
3. In the **Expression Definition** pane, type the following expression:  
**Total([Revenue] for [Order number]) > 750000 and year([Date])=2006 and month([Date])=05**
4. **Validate**, and then click **OK** twice.
5. In **Query Explorer**, click **Query1**.
6. In the **Data Items** pane, double-click **Employee name**, and then modify the expression so it appears as follows:  
**TopCount([Sales (query)].[Employee by region].[Employee name], 5, [Revenue])**
7. **Validate**, and then click **OK**.
8. Point to **Page Explorer** and click on **Page 1**.

**Task 3. Add a row number to the Employee Name cell.**

1. On the toolbar, click **Unlock (currently locked)**.
2. In the **Insertable Objects** pane, from the **Toolbox** tab, drag a **Row number** object to the left of the **Employee name** in the column body.
3. In the **Insertable Objects** pane, from the **Toolbox** tab, drag a **Text Item** between the **row number** and the **Employee name** in the column body.
4. In the text box, type .<spacebar><spacebar> and then click **OK**.
5. On the toolbar, click **Lock (currently unlocked)**.
6. Run the report.
7. Save the report to **Public Folders\B5159** as **Top 5 Revenue Earners**.
8. Close **IBM Cognos Viewer**, and **Report Studio**, and leave **IBM Cognos Connection** open for the first demo.

## Demo 1: Specify an Event Condition

### Purpose:

Some sales staff have generated single orders over \$900,000 in May 2006. Recognizing that large orders are more difficult to manage, you want their hard work to be recognized and want to send them an email to thank them for their effort. You will specify an event condition to identify these orders.

Server: localhost  
 User/Password: brettontf/Education1!  
 Studio: Event Studio  
 Package: GO Data Warehouse (query)  
 Folder: Sales and Marketing (query)  
 Namespace: Sales (query)

### Task 1. Define an event condition.

1. From **Public Folders**, launch **Event Studio** using the **Go Data Warehouse (query)** package.
2. In the **Expression** pane on the right of the work page, type **Total(**.
3. In the **Insertable Objects** area, drag **Sales fact → Revenue** to the right of the expression.
4. At the end of the expression, type **for**
5. In the **Insertable Objects** area, drag **Sales order → Order number** to the end of the expression.
6. At the end of the expression type **) > 900000 and year(**.

This will give us information on every order with revenue over \$900,000.

---

Task 1, Step 1. You can use the functions tab to add Total().

7. From the **Insertable Objects** area, drag **Time → Date** to the end of the expression, and then type) = 2006 and month(
8. From the **Insertable Objects** area, drag **Time → Date** to the end of the expression, and then type) = 05.

The complete expression is shown below:

**Total([Revenue] for [Order number]) > 900000 and year([Date]) = 2006 and month([Date]) = 05**

9. Click **Validate** , above the **Expression** pane.


Under Information, the Error tab opens stating that there are no errors.

## Task 2. Preview the event condition.

1. Click **Preview** .

The event list appears in IBM Cognos Viewer. Each row represents an individual event instance, with revenue of greater than \$900,000.

Revenue	Order number	Date
903,007.98	402471	May 9, 2006
965,848.44	501124	May 12, 2006

2. Close **IBM Cognos Viewer**, then in the **Insertable Objects** area, click the **Data Items** tab .

Only the items on the Data Items tab appear in the preview and in the event list. To get a clearer picture of these events you will add data items from the Source tab to the Data Items tab.

3. Click the **Source** tab, expand **Employee by manager**, right-click **Employee name**, and click **Insert as Data Item**.

---

In real life, you would not want to create the condition this way, because you'd have to remember to update the month and year values monthly. Instead, you could use a condition like:

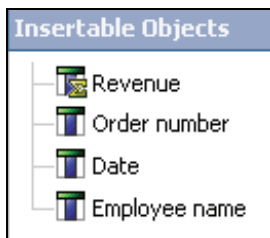
[Month] = month(#\$current\_timestamp#) and [Year] = year(#\$current\_timestamp#).

The "I want to" area shows the main tasks that you perform when you create an agent.

The Insertable Objects area shows available source items, data items used by the current agent, functions you can insert in the event condition, and parameters you created.

- At the bottom of the **Insertable Objects** pane, click the **Data Items** tab.

The result appears as follows:



- Click **Preview**.

You can see that He Teo and Matias Wallgren had orders of over \$900,000, in May 2006.

Revenue	Order number	Date	Employee name
903,007.98	402471	May 9, 2006	He Teo
965,848.44	501124	May 12, 2006	Matias Wallgren

- Close **IBM Cognos Viewer**, but keep **Event Studio** open for the next demo.

## Results:

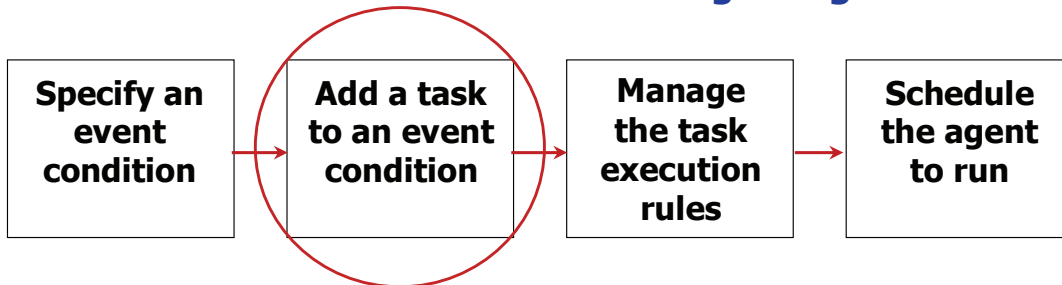
**You defined a event condition to identify single orders of over \$900,000 in May 2006.**



## Add a Task

- When you create an agent, you can add many tasks.
- A task is an action performed by an agent, such as send an email or run a report, or publish a news item.

### Process Flow when Creating an Agent

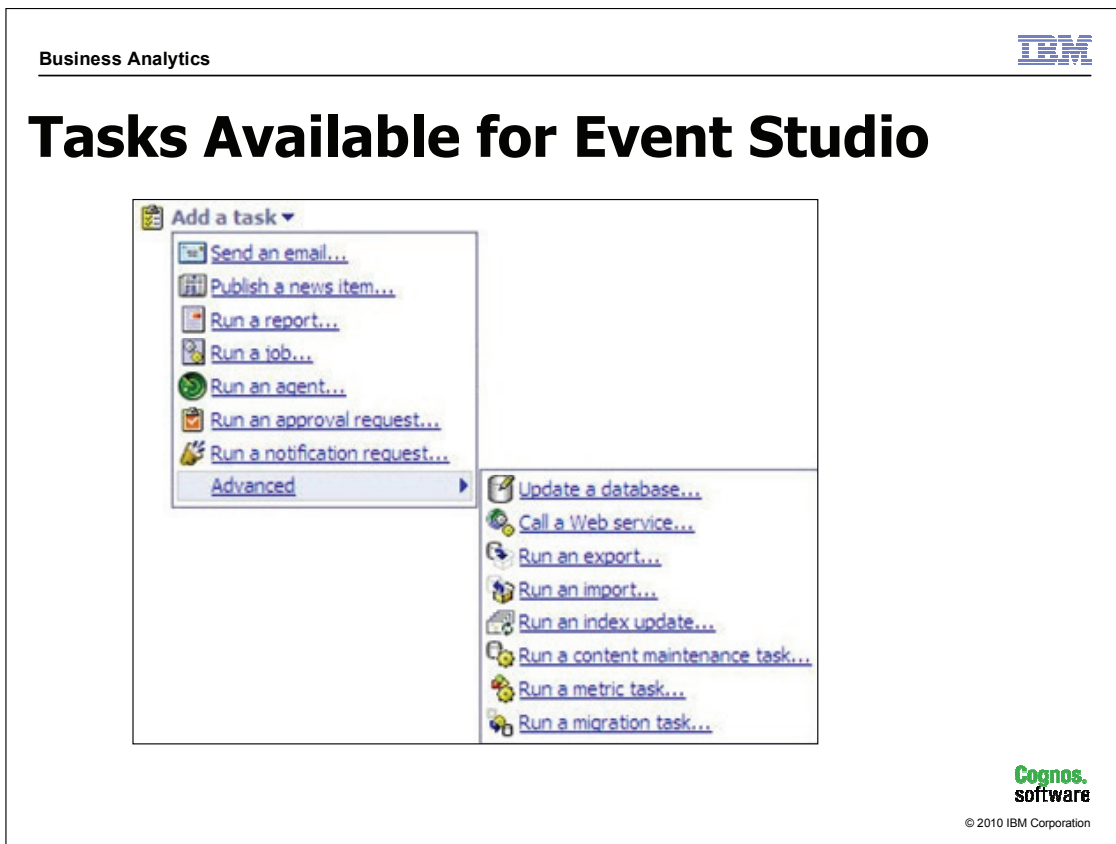


After you create an event condition, you must associate at least one task to the condition.

You control an event instance as it moves through its lifecycle by performing the appropriate tasks at the appropriate state.

By default, all tasks run at the same time, in parallel.

In addition to the tasks that report authors can select, there are four additional tasks available only to administrators: Run an export, Run an import, Run an index update, and Run a content maintenance task.



There are many tasks available for use in Event Studio. The following are some of the more common tasks that are available:

- Send an email
- Publish a news item
- Run a report
- Run a job
- Run an agent
- Update a database
- Call a Web service

Some additional tasks that have been recently added:

- **Approval Request Task**  
Add an approval request task to an agent to send an approval request about an event to the task inbox of specified recipients in IBM Cognos BI
- **Notification Request Task**  
Add a notification request task to an agent to send a secure notification about an event to the inbox of specified recipients in Cognos BI
- **Index Update Task**  
Add the ability to update an index for IBM Cognos Insight from within an agent

**INTERACTION - AppShare:** Show the attendees how to use the Help menu item in Event Studio, and search on "Task"

## Specify the Task Execution Rules

- To specify task execution rules, you first define an event key, then decide when to run the task.
- By default, a task will run on new and all ongoing tasks.

### Process Flow when Creating an Agent



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software

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An event key uniquely defines an event instance. It is used to determine whether an event instance is new, ongoing but changed, ongoing and unchanged, or ceased. A task can also be run on the no event status.

Event Studio compares event instances detected each time an agent runs with those detected in the previous run.

When an agent runs, it gets its status by comparing the detected events with those detected the last time the event ran.

Event Studio then performs the task for each event instance that conforms to the rules.

---

The event key is the combination of data items that uniquely defines an event instance.

There is only one event list per agent, and it is updated each time the agent runs.

The Event list shows all the events that are currently being handled, divided into sections according to their state in the lifecycle.

The Event list provides a quick way of seeing all pertinent information of what is happening at the present time.

**INTERACTION - Markup > Laser Tool:** Open the PDF of the reference card for this course and point out the definitions of the different task execution rules.

## Demo 2: Add an Email Task and Run the Agent

### Purpose:

Some sales staff have generated a single order of over \$900,000 in May 2006. You want to send them an email to thank them for their efforts.

### Task 1. Add an email task.

Note: This demo continues from Demo 1.

1. In the **I want to** area, click **Add a task**, and then click **Send an email**.  
You can click **Select the Recipients**, to add individual recipients. Instead, you will use the Email directly from the database.
2. Delete **Frank Bretton (brettonf)**; from the **To** box.
3. In the **Insertable Objects** pane, click the **Source** tab, ensure that **Employee by manager** is expanded, and then drag **Email** to the **To** box.
4. In the **Subject** box, type **Congratulations**.
5. In the **Insertable Objects** pane, from the **Data Items** tab, drag **Employee name** to the **Body** box, type **,**, press **Enter**, and then type, **You achieved a single order over \$900,000. Thank you for your hard work..**
6. Press **Enter**, type **Sincerely**, and then press **Enter** again.

7. From the source tab, drag **Level 1 manager** to the bottom of the **Body** box.

The result appears as shown below:

**Specify the email to send**

Specify the recipients and contents of the email. To add recipients, click [Select the recipients...](#) or type the email addresses separated by semi-colons. To include an HTML report as the message body, leave the Body box empty and select the report as the only attachment.

**To:**

**Cc:**  
  
[Select the recipients...](#) [Show Bcc](#)

**Subject:**

**Body:** [Change to plain text >>](#) **B** **I** **U**

Sincerely,  
 [Level 1 manager]

[Attach](#) [Add links...](#)

8. On the toolbar, click **Validate** to ensure there are no errors, and then click **OK**.


All tasks maintain the name "new task" till you click away from the task. At that point, email tasks are identified by their subject line, in this case, Congratulations (email).

**INTERACTION - Toolbar Emoticons > Raise Hand:** Ask the participants how they might further personalize this email.



## Task 2. Preview the email task.

1. Click **Preview** .

The event list shows more details about the two instances that match the criteria we have provided:

Event List 					
Revenue	Order number	Date	Employee name	Email	Level 1 manager
903,007.98	402471	May 9, 2006	He Teo	HTeo@grtd123.com	Penelope Tamrine
965,848.44	501124	May 12, 2006	Matias Wallgren	MWallgren@grtd123.com	Penelope Tamrine

2. Scroll down to the bottom to see a preview of an email that will be sent if the event and task conditions are met.


**Congratulations** 

The preview below shows the emails that will be sent.

---

**To:**HTeo@grtd123.com  
**Cc:**(None)  
**Bcc:**(None)  
**Subject:**Congratulations

---

He Teo,

You achieved a single order over \$900,000. Thank you for your hard work.

Sincerely,

Penelope Tamrine

The preview window displays an email for each event instance that satisfies the event condition

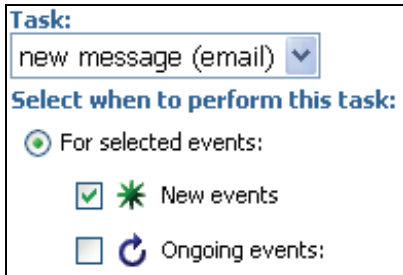
3. Close **IBM Cognos Viewer**.

### Task 3. Manage the Task Execution Rules.

1. In the **I want to** area, click **Manage the task execution rules**.

On the Event Selection tab, notice that by default, all tasks are run for New and All ongoing events. You want the Congratulations email to be sent only once, so you will only run this task on a new event.

2. Clear the **Ongoing events** check box so only **New events** remains selected, as shown below:



Task:  
new message (email) ▼

Select when to perform this task:

☒ For selected events:


☒ \* New events

☐ ↻ Ongoing events:

3. Click the **Event Key** tab, and then click **Include only selected items**.
4. Remove all items except **Employee name**.
5. Click **OK**, and then from the **File** menu, click **Save**.
6. Click **Select another location**, click **Public Folders**, click **B5159**, and then click **OK**.
7. In the **Name** box, type **Congratulations**, and then click **OK**.
8. Minimize **Event Studio**, and then from the **Welcome** page, click **IBM Cognos content**.

You will now run the agent in IBM Cognos Connection.

## Task 4. Run the agent.

1. In IBM Cognos Connection, click **B5159**.
2. Beside the **Congratulations** agent, below **Actions**, click **Run with options** , click **Run**, and then click **OK**.








## Task 5. View run history.

1. Beside the **Congratulations** agent, below **Actions**, click **More**.
2. Click **View run history**.

The status shows that the event was run successfully.

3. Below actions, click **View run history details** .

You see that two instances of the email were sent.

...> Name	Request time	Start time	Completion time	Status	Actions
 ...> Congratulations	February 22, 2010 11:51:46 AM	February 22, 2010 11:51:46 AM	February 22, 2010 11:52:01 AM	Succeeded	 
 Congratulations	February 22, 2010 11:52:07 AM	February 22, 2010 11:52:07 AM	February 22, 2010 11:52:33 AM	Succeeded	
 Congratulations	February 22, 2010 11:52:07 AM	February 22, 2010 11:52:07 AM	February 22, 2010 11:52:34 AM	Succeeded	


Task 4, Step 2. If you click the agent link from IBM Cognos Connection, you will open the agent in Event Studio, not run it.

Task 5, Step 2. You may need to wait for a few moments for the event to finish running before View Run History appears as a link.



4. Click **Close** to close **View run history details**, and then click **View the event list** .

Because this is the first time you have run this agent, all the event instances are new events, as shown below:

NEW EVENTS 					
These events were not detected the previous time the agent ran.					
Revenue	Order number	Date	Employee name	Email	Level 1 manager
903,007.98	402471	May 9, 2006	He Teo	HTeo@grtd123.com	Penelope Tamrine
965,848.44	501124	May 12, 2006	Matias Wallgren	MWallgren@grtd123.com	Penelope Tamrine

If the same agent was run again, and the same event instances were detected, then they would be ongoing events.

5. Close **IBM Cognos Viewer**, and then click **Close**.

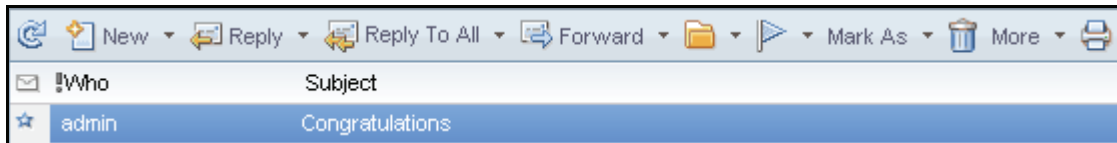
---

All emails that are sent using Event Studio have admin as the sender, because that is the user you specified under notification in IBM Cognos Configuration.

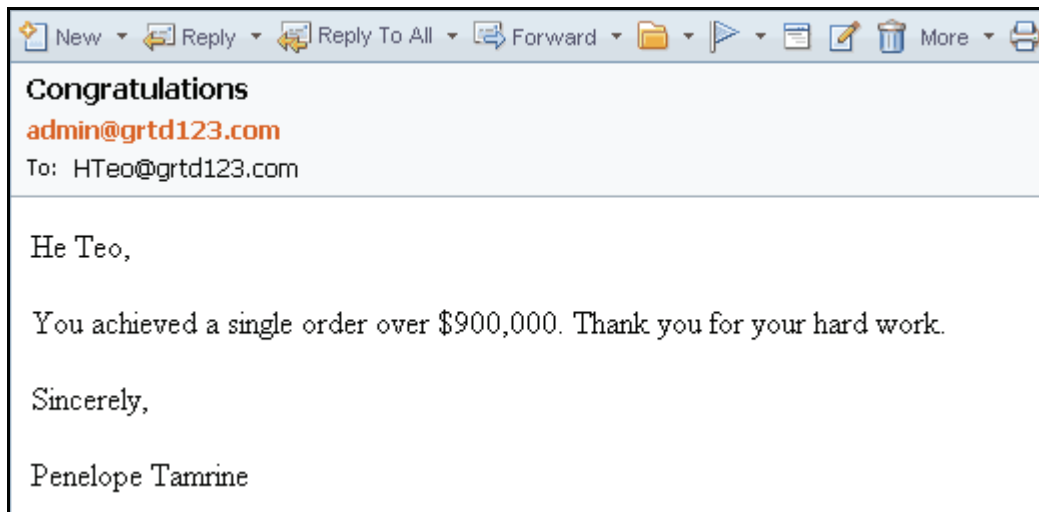
- Within your browser, click on a new tab, and in the address bar type **http://localhost/mail/hteo.nsf** and then click on **Mail**.

If the Connect to localhost authentication window opens up, use the following credentials: **Admin Person/Education1!**

You can see the email sent by admin.



The email sent to He Teo is shown below:




- Maximize **Event Studio** for the next demo.

## Results:

**You added an email task to recognize employees with orders over \$900,000 in May 2006. The Congratulations email was sent to the employee.**

---

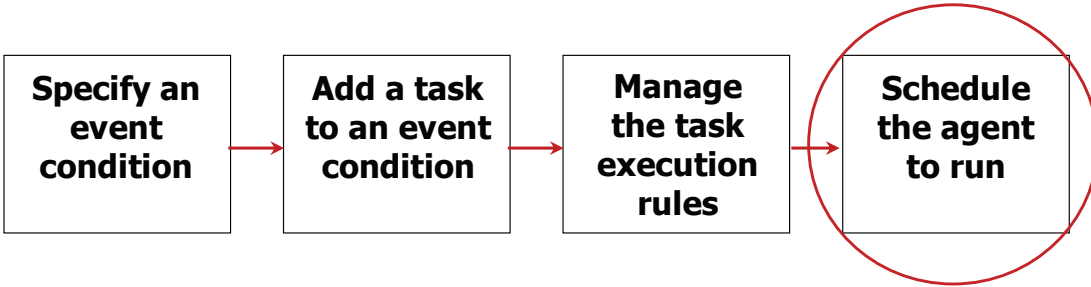
Run the agent again to show that no emails are sent because they are suppressed by task execution rules. Also show that event list shows the same four events as "Unchanged" events.

Business Analytics


## Schedule an Agent


- You can schedule an agent by day, by week, by month, by year, or by trigger.

### Process Flow when Creating an Agent



```

graph LR
    A[Specify an event condition] --> B[Add a task to an event condition]
    B --> C[Manage the task execution rules]
    C --> D[Schedule the agent to run]
    style D stroke:#f00,stroke-width:2px
          
```

  
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By scheduling an agent to run at regular intervals, you do not have to manually run the agent.

Only one schedule can be associated with each agent. If you require multiple schedules for an agent, create agent views and then create a schedule for each view.

---

Scheduling by trigger means that you would enter a trigger name and save the agent. Thereafter the agent can be run by programmatically 'pulling' the trigger by calling the trigger using the SDK or a trigger.bat file.

Triggers are useful if your datasource needs to be taken offline for maintenance or updates, to ensure that your agent does not run when your datasource is down.

You need admin privileges to run batch scripts, or the scripts must be physically on the same machine.

You will schedule agents in the next module, *Build Agents with Events Studio (optional)*.

## Demo 3: Add a News Item Task

### Purpose:

You want to let all employees know that four sales representatives have achieved single orders of over \$900,000 in May 2006. You will do this by adding a news item task and publishing the news item to the portal

### Task 1. Add a news item task.

Note: This demo continues from Demo 2.

1. In **Event Studio**, in the **I want to** area, click **Add a task**, and then click **Publish a news item**.
2. In the **Headline** box, type **Congratulations for individual orders over \$900,000**.
3. In the **Screen tip** box, type **Clicking this news item will take you to the Top 5 Revenue Earners report**.

The screen tip is limited to 100 characters.

4. From the **Data Items** tab, drag **Employee name** into the **Text** box, then type a **,** and then a space at the end of the expression.

This will display the names of the reps identified by the agent.

Next, you will add the Top 5 Revenue Earners report to the news item task, so it opens when the news item is clicked.

---




Task 1, Step 4, this allows for multiple employees to be listed and formatted for readability.

5. Under **Link to**, click **Entry**, and then click **Select an entry**.
6. Click **B5159**, and then click the **Top 5 Revenue Earners**.
7. Click **OK**, and then under **News list location**, click **Select a location**.

This identifies where the news item will be published.

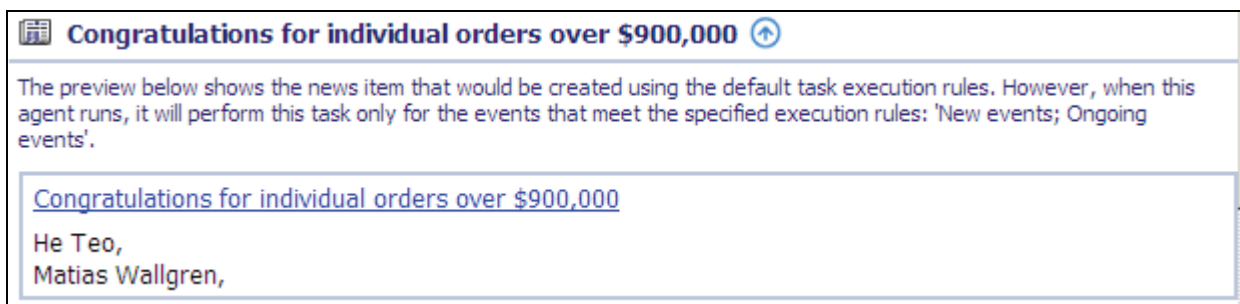
8. Navigate to **Public Folders/B5159** then click **OK**.

The result appears as shown below:

<b>Headline:</b>		<b>Run this news item for the events:</b>
	<input type="text" value="Congratulations for individual orders over \$900,000."/>	New; Ongoing
<b>Screen tip:</b>		
	<input type="text" value="Clicking this news item will take you to the Top 5 Revenue Earners report."/>	
<b>Text:</b>		
	<input type="text" value="[Employee name]"/>	

9. Click **Validate**, click **OK**, click **Preview**, and then scroll down to the preview of the news item task.

The results appear as shown below:



10. Close **IBM Cognos Viewer**, and then in the **I want to** area, click **Manage the task execution rules**.
11. On the **Event Selection** tab, in the **Task** list, click the **new news item** task.  
You will notice that the task is set by default to run on new and ongoing events. You do not need to modify this.
12. Click **OK**, and then from the **File** menu, click **Save**.

When the agent performs the news item task, it publishes the news item to the location chosen. The news item appears as a URL entry, identified by the URL icon. The description text appears if you set our IBM Cognos Connection preferences to use the details view. The screen tip appears when you hold the cursor over the icon for the entry in the news list location.

## **Task 2. Run the Agent in IBM Cognos Connection.**

1. Minimize **Event Studio**, maximize **IBM Cognos Connection** and then in the **B5159** folder, beside **Congratulations**, click **Run With Options**.
2. Click **Run**, and then click **OK**.

### Task 3. View Run History, the most recent event list and the email sent.




1. Beside the **Congratulations** agent, below **Actions**, click **More**.
2. Click **View run history**.

The result appears as shown below:

Request time	Start time	Completion time	Status
September 26, 2008 11:12:04 AM	September 26, 2008 11:12:05 AM	September 26, 2008 11:12:40 AM	Succeeded
September 26, 2008 11:00:20 AM	September 26, 2008 11:00:20 AM	September 26, 2008 11:00:43 AM	Succeeded

3. Click **View the event list** for the latest results.

Since this is the second time you have run the agent, the event instances were picked up as ongoing events, as shown below:

<b>Table of Contents</b>  <a href="#">ONGOING EVENTS</a>					
 <b>ONGOING EVENTS</b> 					
These events were also detected the previous time the agent ran and they had the same values.					
Revenue	Order number	Date	Employee name	Email	Level 1 manager
903,007.98	402471	May 9, 2006	He Teo	HTeo@grtd123.com	Penelope Tamrine
965,848.44	501124	May 12, 2006	Matias Wallgren	MWallgren@grtd123.com	Penelope Tamrine

4. Close **IBM Cognos Viewer**.

---


Task 3, Step 3. If the agent was still executing, you might need to refresh your screen at this point to see the News headline.

- Under **Actions**, for the most recent results, click **View run history details**, to see all the tasks that were run by the agent.

You see that the news item ran successfully, as shown below:








...> Name	Request time	Start time
...> Congratulations	September 26, 2008 11:12:06 AM	September 26, 2008 11:12:06 AM
Congratulations for individual orders over \$90,000.	September 26, 2008 11:12:21 AM	September 26, 2008 11:12:21 AM

Completion time	Status	Actions
September 26, 2008 11:12:20 AM	Succeeded	 
September 26, 2008 11:12:22 AM	Succeeded	

- Click **Close** to close the **View run history details** page.
- Click **Close** to close the **View run history** page.

The news item that we published when you last ran the agent appears in IBM Cognos Connection, as shown below:

 <a href="#">Congratulations</a>	March 14, 2011 10:11:36 AM	    <a href="#">More...</a>
 <a href="#">Congratulations for individual orders over \$900,000</a>	March 14, 2011 10:11:36 AM	    <a href="#">More...</a>


---

Task 3, Step 7. The email task is suppressed because you have set the Task Execution Rules to have it only run on a new event.

At the end of Task 3, you can Reset the event list and run the agent once again to demonstrate the differences of the agent running on a new task: the email task will not be suppressed and the event list will show the status as New.

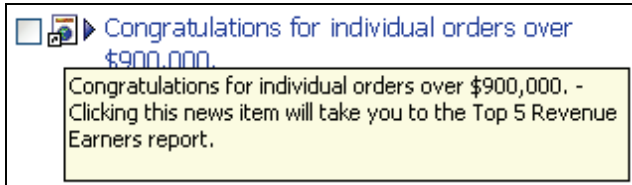




## Task 4. View the News Item.

1. On the toolbar, click **Details View**  to view more details of the news item.



2. Hover over the news item icon to see the screen tip.



3. Click the news item to open the **Top 5 Revenue Earners** report.
4. Click **Return**  to return to **IBM Cognos Connection**, and then on the toolbar click **List view** .
5. Close **Event Studio** and **IBM Cognos Connection**.

You could schedule the event to run as often as we wish to be alerted, perhaps on a weekly basis. This can be done through Event Studio or through IBM Cognos Connection.

### Results:

**You informed all employees that four sales representatives achieved high orders in May 2006 by adding a news item task and publishing it to the portal.**

Task 4, Step 5. You access the same scheduler through Event Studio and IBM Cognos Connection. When you are creating an agent you may decide to schedule its runs through Event Studio. After the agent has been created, and you have run it from IBM Cognos Connection, you may schedule it from IBM Cognos Connection, to avoid having to open Event Studio. You will schedule an agent in the module *Build Agents with Event Studio*.

**INTERACTION - Whiteboard:** Ask participants; The news item headline is intended to serve what purposes? List all answers on the whiteboard; make sure that the following answers are included:

1. To display an important message
2. To access a web page or report you need regularly

## Summary

- At the end of this course, you should be able to:
  - examine the role of Event Studio in Performance Management
  - list the benefits of Event Studio
  - add tasks to an agent
  - run an agent

**INTERACTION - Check Sticker:** Check each objective as it is summarized